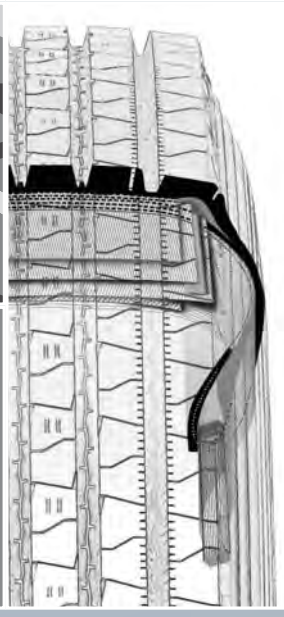
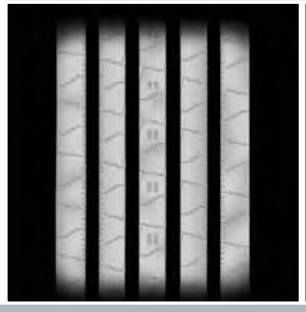
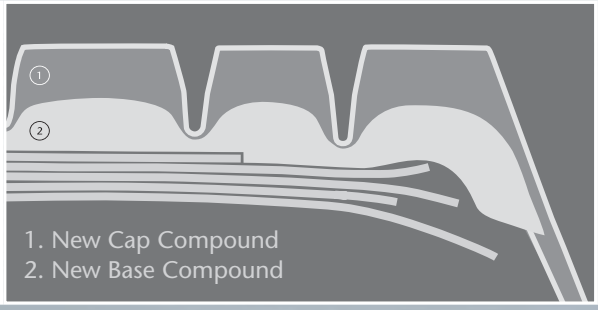
Truck and Bus Radial Tire Sales and Reference Guide





YOKOHAMA®



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Technology drives better tires.™

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Corporate Headquarters
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Fullerton, CA 92834-4550
800.423.4544 714.870.3800

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M-300-0410

YOKOHAMA

	101ZL	RY617	RY083A	103ZR/104ZR	RY023	703ZL	RY587	RY103	Y785R	TY527	TY577	TY517
750R15 FRT TT									H/14			
825R15TR TT									J/15			
1000R15TR TT									G/18 J/18			
825R20 TL									G/15			
1200R24 TT												
9R17.5HC TL									H/15			
10R17.5 TL									H/17			
11R17.5HC TL									H/18			
215/75R17.5 TL					H/16							
235/75R17.5 TL					H/16							
9R22.5 TL				F/17					F/15			
10R22.5 TL				G/18					G/16			
11R22.5 TL	G/18	G/18	G/19	G/23 H/23	G/19 H/19	G/32	G/13			G/32	G/30	G/28 H/28
11R24.5 TL	G/18	G/18	G/19	G/23 H/23	G/19 H/19	G/32	G/13			G/32	G/30	G/28 H/28
12R22.5 TL				H/20	H/20							
225/70R19.5 TL					F/16							
245/70R19.5 TL					G/16							
265/70R19.5 TL					G/17							
285/70R19.5 TL					H/17							
245/75R22.5 TL								G/17				
265/75R22.5 TL								G/17				
255/70R22.5 TL					H/18							
275/70R22.5 TL								H/17				
295/75R22.5 TL	G/18	G/18	G/19	G/23 H/23	G/19 H/19	G/32	G/13			G/32	G/30	G/28 H/28
295/80R22.5 TL				H/20								
285/75R24.5 TL	G/18	G/18	G/19	G/23	G/19	G/32	G/13			G/32	G/30	G/28
315/80R22.5 TL												
385/65R22.5 TL												
425/65R22.5 TL												
445/65R22.5 TL												

	TY303	SY767	TY287	LY053	501ZA	MY627W	MY507	Y773	MY547	RY253	MY507A	
750R15 FRT TT												
825R15TR TT												
1000R15TR TT												
825R20 TT												
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10R22.5 TL												
11R22.5 TL	G/28	G/26 H/26		H/31	H/26		H/26					
11R24.5 TL	H/28	G/26 H/26		H/31	H/26		H/26					
12R22.5 TL								H/20				
225/70R19.5 TL	F/20		F/19									
245/70R19.5 TL												
265/70R19.5 TL	G/21											
285/70R19.5 TL	H/21											
245/75R22.5 TL												
265/75R22.5 TL												
255/70R22.5 TL	H/24						H/20					
275/70R22.5 TL							H/22					
295/75R22.5 TL	G/28											
295/80R22.5 TL												
285/75R24.5 TL	G/28											
315/80R22.5 TL						L/23		M/21				
385/65R22.5 TL										J/19	J/23	
425/65R22.5 TL										L/19	L/23	
445/65R22.5 TL										L/20	L/24	

TRUCK AND BUS

RADIAL TIRE SALES AND REFERENCE GUIDE

YOKOHAMA®

TIRE REPLACEMENT GUIDE

YOKOHAMA HIGHWAY SERVICES	101ZL	RY617	RY083A	103ZR
	SmartWay Verified .environment	SmartWay Verified STEM 2 StrainEnergy Minimization		SmartWay Verified .environment
Michelin	XZA-3	XZA-3	XZA-1	XZE-2
Goodyear	G395	G397	G397	G661
Bridgestone	R287	R280	R287/R227	R260

	TY287	RY587/ RY587 MC²	RY103	Y785R
	 STEM 2 StrainEnergy Minimization	SmartWay Verified STEM 2 StrainEnergy Minimization MC Motivated Conservation Concept	 STEM StrainEnergy Minimization	
Michelin	XDS2	XT-1	XZA	XZA
Goodyear	G622	G316	G169	G149
Bridgestone	M724F	R195	R250	R187

104ZR

.environment™

XZE
G149
R260

RY023

STEM StrainEnergy Minimization

XZA, XZE
G169
R250

703ZL

SmartWay℠ Verified

.environment™

XD4, XDA-HT
G372
M726EL

TY527

STEM 2 StrainEnergy Minimization

XD4, XDA-HT
G338
M726EL, M726

LY053

STEM StrainEnergy Minimization

XDY-3, XDY-2
G177
L320

501ZA

.environment™

XZY-3
G288
M843

MY507

STEM 2 StrainEnergy Minimization

XZY-2, XZY-3
G288
M843

MY627W

STEM 2 StrainEnergy Minimization

XZUS
G287HSS
M860

TY577

SmartWay SM Verified

STEM 2 StrainEnergy Minimization

XD4, XDA-HT
G372
M726

TY517/ TY517 MC²*

* SmartWay SM Verified

STEM 2 StrainEnergy Minimization

MC Mechanical Conservation Concept

XDA-3
G362
M720, M726

TY303

XDE-MS
G182
M720, M711

SY767

STEM 2 StrainEnergy Minimization

XDN2
G305
M725

Y773/MY547

STEM StrainEnergy Minimization

XZY-2, XZY-4
G287
M844

MY507A

STEM 2 StrainEnergy Minimization

XZL
G178
M844F

RY253

STEM StrainEnergy Minimization

XTE-2
G286ASS
R194

TABLE OF CONTENTS

The Yokohama Difference . . . . . 1 - 4
Zenvironment™, STEM, STEM-2, and MC² . . . . . 1 - 2
Truck Tire Basics . . . . . 5 - 22
Longer Wear and Lower Costs . . . . . 23 - 32
Load Inflation Charts . . . . . 33 - 34

Truck Steel Radial Tires

Line Haul Steer / All-Position
101ZL 37
RY617 38
RY083A 39

Regional Steer / All-Position
103ZR/104ZR 40
RY023 41

Line Haul / Regional Drive
703ZL 42
TY527 43
TY577 44
TY517/TY517MC² 45
TY303 46
SY767 47
TY287 48

Line Haul Trailer and Other
RY587/RY587MC² 49
RY103 50
Y785R 51

On- & Off-Highway / Mix Service
LY053 52
501ZA 53
MY507 54
MY627W 55
Y773/MY547 56

Wide Base
MY507A 57
RY253 58

Light Truck Commercial Tires

Highway All-Position
Y788R 59
TY213A 60
RY103/RY103A 61
RY215 62
Y785R 63

Highway Traction
TY303 64
Y742S 65
Y735B 66
TY025 67

Replacement Guide . . . . . 68 - 70
Original Tread Depth 71

YOKOHAMA smart choice
LONGEVITY • EFFICIENCY • AVAILABILITY • DEPENDABILITY

TECHNOLOGY DRIVES BETTER TIRES

Yokohama is dedicated to your success.

Our industry-leading tire lineup has helped us build and maintain many successful partnerships for nearly 100 years. And when it comes to the business and performance requirements most critical to today's fleets, Yokohama leads the industry by offering a winning combination of Longevity, Efficiency, Availability and Dependability.

Longevity–Featuring durable casings and deep original tread depths, Yokohama tires are engineered to last.

Efficiency–Our dedication to technology results in tires that deliver incredible fuel efficiency.

Availability–An expansive dealer network provides comprehensive coverage across the country.

Dependability–Yokohama tires are recognized industry-wide for their durable casings an exceptional retreadability.

Yokohama's leadership in these areas makes us the only tire supplier to deliver so completely on these four essential attributes. That's why we're the Smart Choice when you need maximum value from your tire investment.

Yokohama technology gives you the advantage.

Fleet owners require more miles, greater retreadability, longer, even wear and less maintenance costs from their tires. And with the extreme demands of today's trucking industry, continuous innovation is essential. That's why Yokohama offers advanced tire technologies to help you achieve greater returns from your tire investment.

From our innovative Zenvironment™ technology that delivers better results for the road and the environment, to our exclusive STEM and STEM-2 technologies that provide maximum casing life, to the ultra-low rolling resistance derived from MC^2 technology, Yokohama engineers some of the most technologically advanced tires available anywhere.

ZENVIRONMENT™: SMARTER ENGINEERING FROM THE START

Zenvironment offers proof that technology can provide better results for the environment while delivering superior performance on the road. By combining innovative tread designs, compounds and casing construction with a highly efficient manufacturing process, Zenvironment tires not only reduce fuel consumption, waste and pollution, they can also help significantly reduce your operating costs.

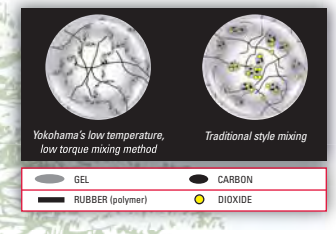
Innovative tread designs. Recent advancements allow Zenvironment tires to deliver longer tread life and lower rolling resistance for better fuel economy.

Groundbreaking rubber compounds. Our environmentally efficient single-stage mixing method creates a higher quality rubber compound that not only increases mileage by 10%, it also lengthens tread life and minimizes rubber fatigue to help these tires last longer.

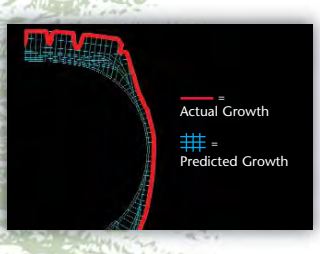
Advanced casings. Our unique Zenvironment casing is designed to compensate for the natural aging of materials, as well as the normal expansion that occurs during the first 30,000 miles. The result is an extremely stable tire that delivers consistent performance throughout its entire lifespan.

With Zenvironment technology, the end result is a long-lasting, fuel efficient tire that delivers significant savings at the pump. Which means that Zenvironment isn't just better for the environment, it's also better for your bottom line.

Groundbreaking rubber compounds



Most durable casings



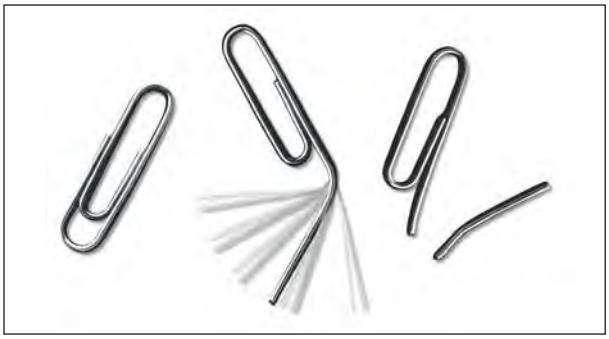
Innovative tread designs

STEM StrainEnergy Minimization

STEM-2 StrainEnergy Minimization

STRAIN ENERGY MINIMIZATION TECHNOLOGY EXTENDS CASING LIFE

Even under normal operating conditions, a tire under load is subjected to incredible straining and flexing forces that can break down the strength of the casing steel and rubber compounds—much like what happens to a paper clip that's bent rapidly back and forth. But Yokohama's exclusive STEM and STEM-2 technologies reinforce the casing to extend tire life, allowing for multiple retreads and reduced maintenance costs that add up to more miles for every tire dollar spent.

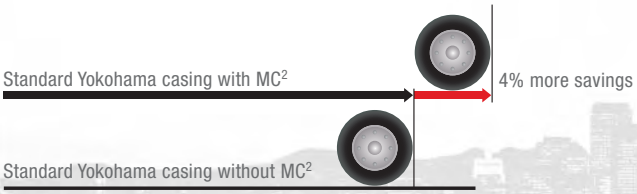


MC² Maximized Conservation Concept

MC²: CONSERVATION TO THE N^TH DEGREE

When the enemy is fuel consumption, the solution is our Maximized Conservation Concept (MC^2) technology. Utilizing an advanced compound that minimizes the effects of heat on the casing and tread, MC^2 tires provide ultra-low rolling resistance to reduce your cost-per-mile. The end result is a long-lasting, smooth-running tire that maximizes your truck's operating efficiency for increased profitability.

FUEL SAVINGS



Independent testing of identical Yokohama tires, one incorporating MC^2 technology and the other with the standard compounding clearly illustrates the benefit of MC^2. The identical tire with MC^2 rolls 4% easier, resulting in appreciable fuel savings.

LONG-WEARING TREAD.
SUPERIOR RETREADABILITY.
EXCELLENT, EVEN TREADWEAR.
RESISTANCE TO STONE RETENTION.
SUPERIOR FUEL EFFICIENCY.
CUT AND CHIP RESISTANCE.
LOW COST-PER-MILE.

Advanced design technology and superior engineering are the reasons why Yokohama tires are so frequently chosen for tough situations. Yokohama's goal is to produce radial truck tires that are the most trouble-free with the lowest cost-per-mile when compared with any other tire in the industry.

FINITE ELEMENT METHOD (FEM) DESIGN AND TESTING

The developmental-design phase of each Yokohama radial truck tire incorporates state-of-the-art computer models to examine individual tire elements. To ensure proper designs and maximum performance, this Finite Element Method (FEM) evaluates stress and strain in each part of the tire by simulating operation under load. Shear, plunger and durability tests are performed on the tire components, resulting in tires that are stringently designed to perform at the highest levels for their intended use. Yokohama, however, does not stop here. The tire undergoes a rigid series of on-vehicle tests under real-world conditions. Traction, rolling resistance and fuel economy are measured through every stage of tread life.

Whether on-road, off-road or pick-up and delivery, you can be assured that Yokohama produced the best possible tire for your application.

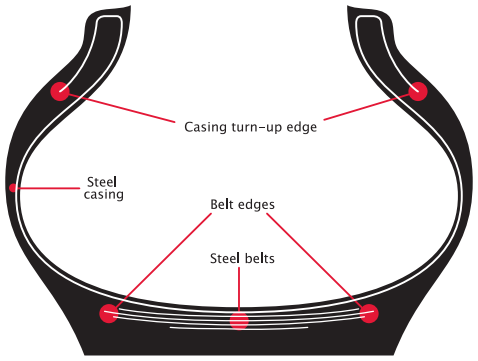


Fig. 1: Critical strain-energy points of a truck and bus radial

Figure 1 Illustrates the strain energy of a typical truck and bus tire. The highest level of strain energy occurs around the bead assembly and in the upper shoulder area of the belt edges.

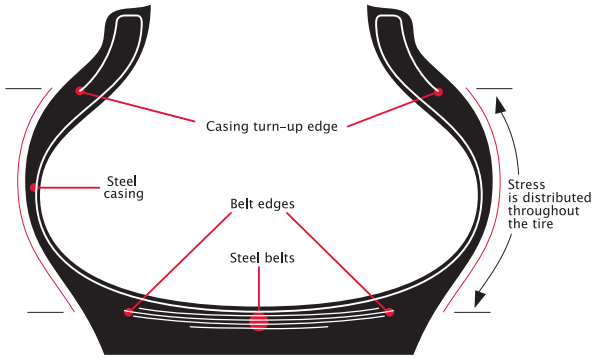


Fig. 2: Cross-section of a Yokohama truck and bus radial showing strain energy reduction

The Finite Element Method (FEM) allows Yokohama to design and reduce the tremendous strain levels in these two critical areas by optimizing the casing shape. Strain energy is decreased on the specific areas of the tire and distributed along the entire casing sidewall. This reduction in strain results in outstanding durability and superior retread characteristics (Fig. 2).

STRAIN ENERGY DESIGN AND TESTING

Casing fatigue is also addressed by Yokohama. It occurs when strain and stress result in the failure of one or more of the casing's many elements. (Like a chain, a tire is only as strong as its weakest point.) The resulting force of these strains and stresses is called "strain energy" (strain x stress = strain energy). Yokohama uses this method to uniquely test radial truck tires and return results for design refinements.

In operation, truck tires are subjected to many more stress variables than passenger tires (e.g., higher inflation pressures, frequent load changes and multiple retreading). Therefore, the effect of strain energy on tire durability is particularly important.

THE KNOWLEDGE GAINED FROM THIS ANALYSIS IS INCORPORATED INTO YOKOHAMA'S NEWEST GENERATION OF RADIAL TRUCK TIRES:

New casing shapes optimized for durability have a six percent to 21 percent strain-energy reduction at the belt-edge and bead turn-up areas over conventional designs.

New compounds for cap treads, undertreads and sidewalls reduce the effects of fatigue on the tire and provide resistance to environmental pollutants.

Post-production verification combined with computer-aided design, extensive off-vehicle testing and stringent on-vehicle monitoring ensures products that are proven to meet Yokohama's high standards.

Only after passing all these tests will Yokohama allow a product to be sold. It is for that reason that Yokohama tires are so often chosen for tough-usage situations such as waste hauling and material handling.

Subjecting our tires to rigorous pre-release checks ensures Yokohama's superior standards of consistency, reliability and durability. Customers and dealers can depend on trouble-free performance, as well as some of the lowest possible cost-per-mile efficiencies of any product in the industry.

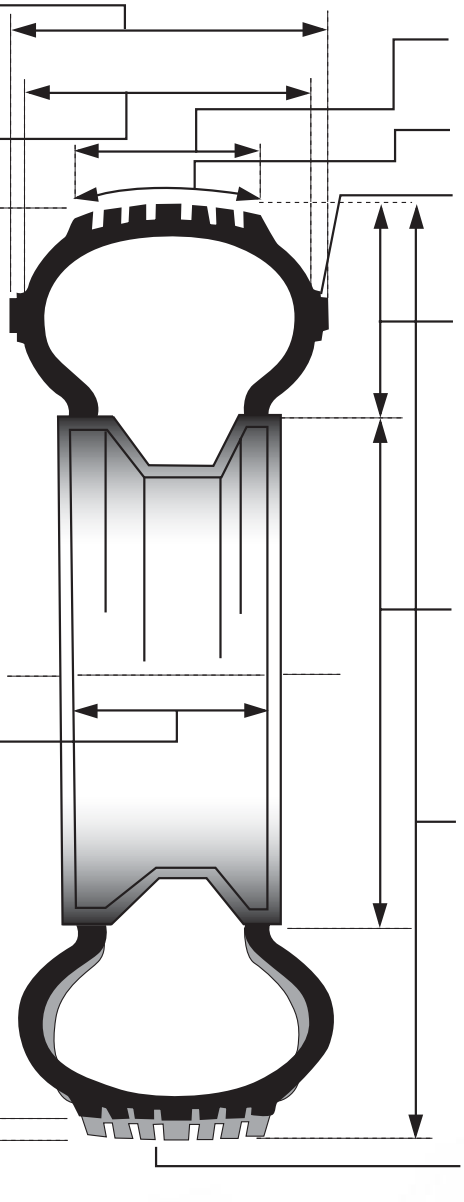
This philosophy extends well beyond the original treadwear cycle, and into the retreading stages. Retreaders have consistently rated Yokohama casings among the most retreadable in the business. They have become synonymous with consistency and reliability.

Yokohama institutes critical measures to protect against undesirable occurrences with its radial truck tires. It creates a solid bond of trust and confidence between manufacturer and user.

Yokohama offers a wide spectrum of truck radials designed to meet any challenges, regardless of the duty they must face.

DESCRIPTION OF TIRE DIMENSIONS

The following diagram offers explanations of key dimensional information relevant to truck tires.



Overall Width

The exterior measurement of a tire's width from the inner to the outer sidewall (including protective ribs and decorations) when properly mounted and inflated.

Section Width

The measurement of a tire's width from sidewall to sidewall (excluding protective ribs or decorations) when properly mounted and inflated, but with no load placed upon the tire.

Free Radius

The distance from the wheel axle center line to the outer tread surface of the unloaded, properly inflated tire.

Rim Width

The linear distance between the outer and inner rim flanges on which the tire beads seat.

Static Loaded Radius

The distance from the wheel axle center line to the tread contact surface. Measured after the tire has been mounted on its measuring rim, inflated to the test pressure and placed under a prescribed load.

Tread Width

The distance from the outer edge to the inner edge of the tread.

Tread Radius

The design curvature of the new tire tread profile.

Section Height

The measurement of the vertical distance between the tire's bead seat and outer tread surface when properly mounted and inflated, but with no load placed on the tire.

Nominal Rim Diameter

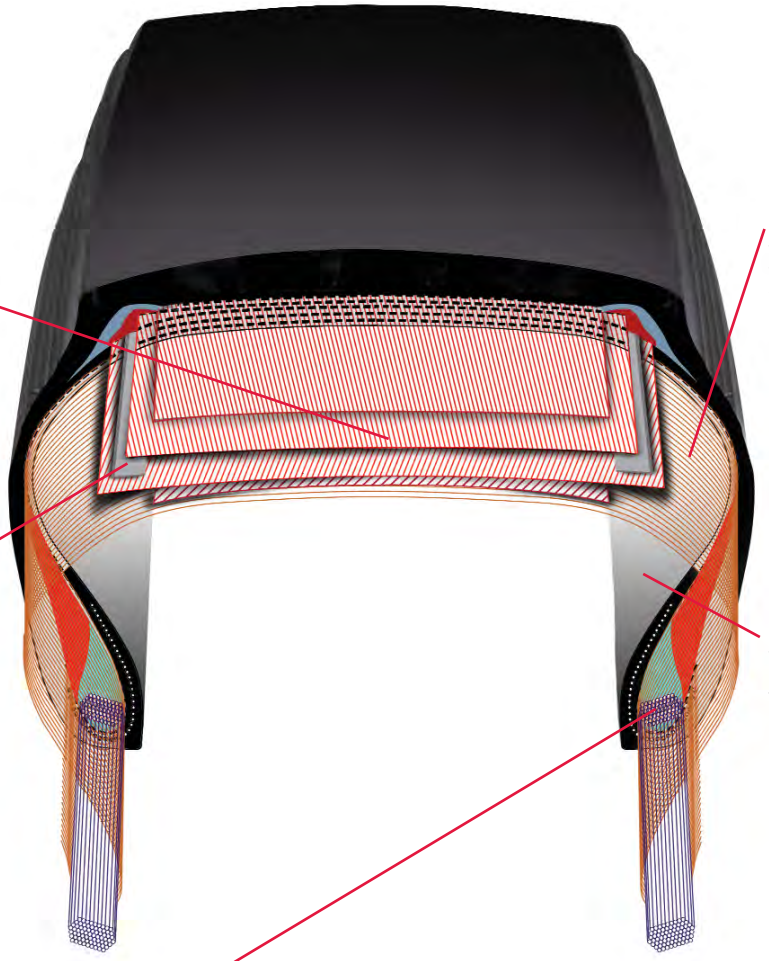
The linear distance between bead seats measured at the widest point. This measurement may be in inches or millimeters.

Overall Diameter

The linear distance between the tire's tread surfaces measured at the widest point. This measurement is taken with the tire mounted on the measuring rim and no load applied.

THE CASING

The life of a tire is dependent on many elements, but perhaps the most important is the strength and integrity of the casing, which includes all parts of the tire except the tread and shoulder. The quality of the Yokohama casing not only ensures original tread longevity and performance, but also contributes to the long life of the tire when it is retreaded.



Steel Belts

Yokohama's steel belts effectively increase the stiffness of the tread area, minimize distortion of the ground contact area, provide puncture resistance, and increase fuel efficiency.

Body Ply

Yokohama's casing consists of high-tensile steel ply, which allows the tire to maintain inflation pressure, successfully carry the load and resist shocks.

Belt Edge Cushion

Yokohama tires feature a belt edge cushion to help prevent separation of the belt edges and therefore the tread, caused by the scissoring effect of the belts.

Inner Liner

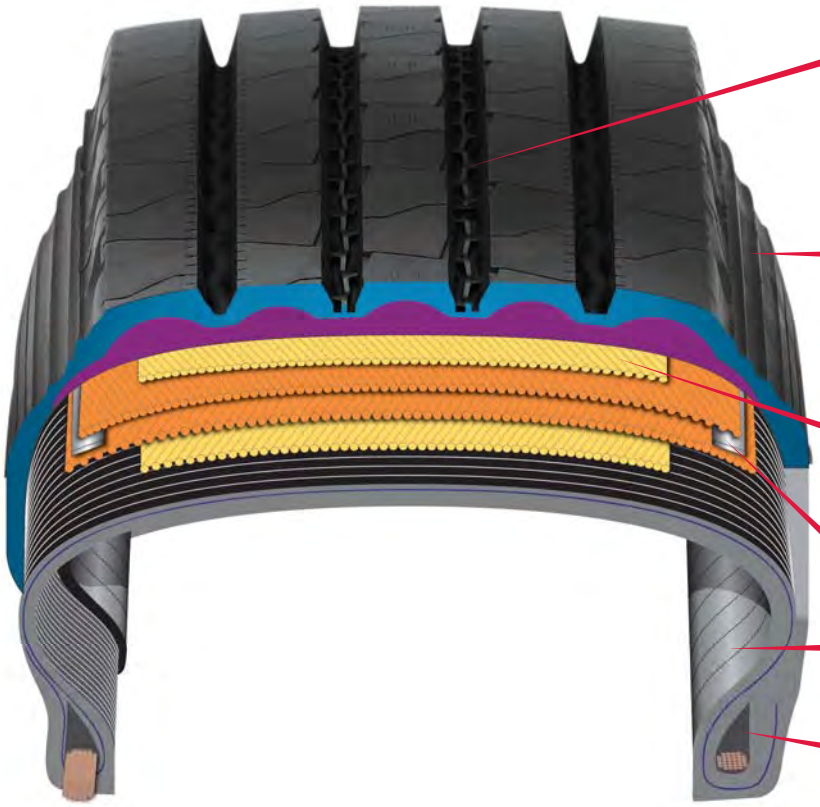
Yokohama's inner liner is specially designed to minimize air seepage into adjacent areas of the tire. The quality of the inner liner is critical to prevent air from penetrating into the casing.

Bead Assembly

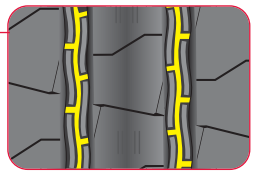
Yokohama has developed and patented several unique bead assembly constructions. Our bead assemblies are combinations of steel and nylon chafers (reinforcing cord layers) wrapped around the bead (a bundle of high-tensile steel wires) and the bead filler (apex rubber). These combinations reinforce the bead area to secure the inflated tire against the rim. In a tubeless tire, this fit must be tight enough that air does not leak from the tire during normal operation.

DESCRIPTION OF YOKOHAMA TIRE CONSTRUCTION

A tire is designed to contain the air pressure that carries the weight of the vehicle and load. Radial tires consist of the sidewall, tread, shoulder and bead areas. Unique combinations of rubber compounds and innovative construction methods cause all of the tires' individual elements to adhere to their surrounding components resulting in a single product. The technological advancements in Yokohama's tires offer better handling, ride, comfort, traction, treadwear and fuel economy than ever before.



SUPERIOR CASING PROTECTION



Block-shaped stone ejectors prevent stones from traveling to the bottom of the grooves, reducing damage to the casing by 25% to ensure greater durability and retreadability.

DURABLE, PROTECTIVE SIDEWALL

Enhanced **sidewall protector bars** help shield the casing from scrubbing and curbing, while delivering a smooth, comfortable ride at highway speeds.

LONG LASTING TOUGHNESS

An **ultra-wide top steel belt** increases rigidity across the entire tread surface, for enhanced durability and to avoid casing damage.

Belt edge cushion firmly bonds steel belts to reduce strain and provide longer casing life.

Specially designed **inner liner** helps maintain proper inflation and protects steel belts from oxidation by minimizing air seepage.

Contoured bead area promotes uniform seating around the entire rim, reduced friction and a smoother ride.

RETREADING

Operational costs are steadily on the rise. To combat this trend, truck tire retreading continues to be a valuable practice in the industry. Today, a tire must not only exhibit exceptional original treadwear, but afford multiple retread opportunities. Recent technological advancements in retreading help to accommodate multiple retreads to significantly extend tire life and therefore reduce tire expense.

Yokohama understands the value of retreading and concentrates on designing radial truck tire casings that will continue to perform well after the original treadlife.

Retread manufacturers nationwide have consistently rated Yokohama casings among the best in the industry. This, coupled with one of the best casing warranties available, strengthens Yokohama's commitment to quality, dependability and value.

TIRE COMPOUNDS

One of the challenges faced by the tire industry had been how to produce a high-quality, durable, fuel-efficient tire that does not sacrifice traction.

Focusing our research-and-development efforts in this direction, we broke industry barriers and proved in independent tests that Yokohama tires successfully match the fuel efficiency of the other leading brands.

Yokohama has invested millions of dollars in researching and developing new rubber compounds and tread designs to meet the increasing demand for specialized applications.

Each Yokohama tire is a combination of more than ten different rubber compounds with special properties to ensure the integrity and durability of the tire.

TREAD DESIGN

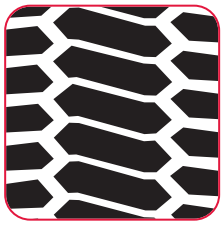
The function of the tread is to increase the durability and operational life of the tire. It is the pattern of the tread combined with specially formulated rubber compounds that gives each tire its specific performance characteristics.

Recognized as a leader in tread design, Yokohama is continually researching new tread compounds and innovative tread patterns to improve tire performance and fuel efficiency. The Yokohama tread designs below are examples of basic types used throughout the industry. Yokohama combines the best of these basic designs, as in the rib-block example, to create a wide range of tires that enhance quality and durability to meet all consumer needs.

Rib-Block Type

This pattern combines block type tread in the center with a shoulder rib design and has the following advantages:

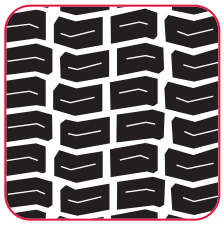
- Low rolling resistance.
- Comfortable ride.
- Relatively low noise generation.
- Good traction on snow or in muddy terrain.



Lug Type

In this pattern, the grooves are cut across the tread and has the following advantages:

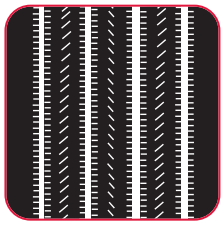
- High braking force.
- Excellent traction on unpaved surfaces.



Block Type

This tread pattern is composed of independent blocks and has the following advantages:

- Outstanding braking force and traction.
- Good traction on snow or in muddy terrain.



Rib Type

In the rib type pattern the tread and grooves follow the circumference of the tire and have the following advantages:

- Low rolling resistance.
- Comfortable ride.
- Good steering.
- Relatively low noise generation.

Combined Block-Lug Type

This pattern combines a rib type in the center with a lug type design and has the following advantages:

- Wide twin straight grooves provide outstanding water evacuation.
- Open shoulder block design provides increased wet and dry traction.
- Excellent traction and braking force.
- Suitable for paved and unpaved surfaces.

TIRE APPLICATION

While the components of a tire determine its inherent performance characteristics, it is the correct application of the tire that ultimately guarantees a satisfied customer.

Because of this, it is important to carefully consider all the factors that affect tire performance in an application: the size of the vehicle, its specific use, the road conditions and terrain, weather or any special requirements a fleet or driver encounters.

If you have any questions or would like to consult us on a specific tire choice, please contact your Yokohama representative. We are involved in many field tests of truck and bus tires in various industries, the results of our experience are always available to you.

Consistent with our policy to provide a full line of products to meet all needs of the trucking industry, Yokohama manufactures a diverse line of truck and bus tires in a wide range of sizes and styles for all wheel positions and all applications. We also offer an excellent selection of the popular low-profile and wide-base sizes.

YOKOHAMA'S LOW-PROFILE DESIGNS

Low-profile tires are rapidly gaining popularity because of the many advantages they offer over the conventional tire.

- Shorter, more responsive sidewalls contribute to improved handling and exceptional cornering stability.
- The larger tread contact area and more uniform ground pressure result in less tread distortion.
- Lighter weight allows more payload.
- Lower height increases cargo volume potential.
- Lower profile means better overall vehicle stability.
- Lower rolling resistance.

WIDE-BASE TIRES

Yokohama has developed wide-base tires for on-road as well as off-road applications. They are especially cost efficient in applications for heavy load-carrying vehicles such as cement trucks or for dual replacement on line-haul trailers.

YOKOHAMA TBS PRODUCT LINE BY APPLICATION

	LONG HAUL			REGIONAL HAUL			PICK UP & DELIVERY		ON- AND OFF-HIGHWAY		
	Premium	Standard	Wide Base	Premium	Standard	Wide Base	Conventional	Low Platform	Premium	Standard	Wide Base
Front Axle (All-Position)	101ZL	RY617 RY083A		103ZR 104ZR	RY617 RY083A RY023 RY103 Y785R	RY253 MY507A	RY023 RY103 Y785R	RY103A RY103 RY023	MY507 501ZA	RY103 Y773/MY547 MY627W	RY253 MY507A
Drive Axle	703ZL TY577 TY527	TY517 TY517 MC[2]	MY507A	TY527	TY303 TY517 TY607	MY507A	703ZL TY527 TY517 Y713B	TY303	MY507	TY303 Y773/MY547 LY053	
Trailer Axle	RY587 RY587 MC[2]	RY103 RY023 Y785R	RY253	RY587 RY103 Y785R	RY023 RY103 Y785R	RY253			MY507 Y773/MY547 RY103	RY103 MY507	RY253

TIRE IDENTIFICATION

The following letters may be used as part of truck tire size designations to identify the type of service or rim for which the tire is designed.

LT	Identifies a light truck tire for service on trucks, buses, trailers and multipurpose passenger vehicles for normal highway service and to be used on a five degree tapered bead seat or on a 15 degree bead seat rim.
TR	Differentiates certain tires from passenger car, light truck and other vehicles which use similar designations but are designed to fit rims of different bead seat diameters.
ML	Identifies mining and logging tires used in intermittent highway service.
MH	Identifies tires for mobile homes.
NHS	Designates tires "not for highway service."
ST	Indicates special tires for trailers in highway service.
HC	Designates tires for heavy trucks having 15 degree tapered bead seat rims of 17.5" diameter designated "HC". The HC suffix differentiates these tires from light truck tires 17.5" bead diameter.

EXPLANATION OF TRUCK TIRE DESIGNATIONS

Examples of light truck and commercial truck tire size designations.

TIRE TYPE	TIRE SIZE DESIGNATION			RIM DIAMETER	LOAD IDENTIFICATION	OPTIONAL SERVICE DESCRIPTION	
	NOMINAL SIZE WIDTH (MM)	NOMINAL ASPECT RATIO	CONSTRUCTION CODE R = RADIAL		LOAD RANGE	LOAD INDEX SINGLE/DUAL	SPEED SYMBOL
METRIC SIZES	255/	70	R	22.5	G	138/134	M
CONVENTIONAL SIZES	10.00		R	20	H	146/142	L
	11.00		R	22.5	H	146/142	L
	11.00		R	15TR*	H	144/142	
	8.00		R	17.5HC**	F	112/117	L
	10.00		R	20 ML	F		
	11.00		R	22.5 ML	F		

TR* – Indicates a tire for rims having a specified rim diameter plus .156 or .250 | HC** – for use on "HC" rims | ML – Mining and Logging tires

DOT TIRE IDENTIFICATION CODES

Understanding tire DOT codes is important in cases of product recall, warranty claims and tire record keeping. By utilizing these codes, a fleet can simplify its tire records and tire identification procedures.

All new tires sold in the United States must have a DOT number cured into the lower sidewall of one side of the tire. This code has a standard format which has been designated by the federal government.

NEW TIRE IDENTIFICATION NUMBER

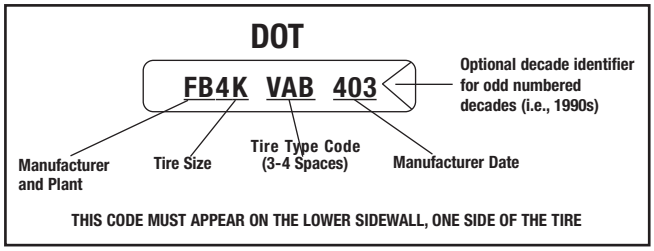
Due to the nature of DOT tire codes, hundreds or even thousands of tires can have the same code. The manufacturing date of the code is changed weekly, usually on Sunday, at most tire manufacturing plants.

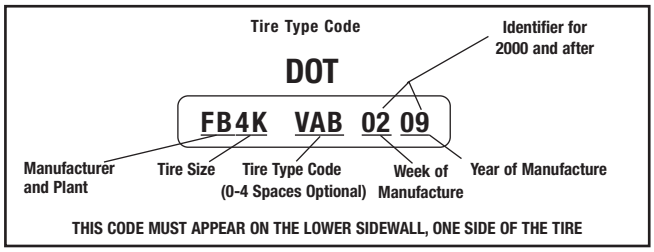
TIRE SERIAL NUMBERS

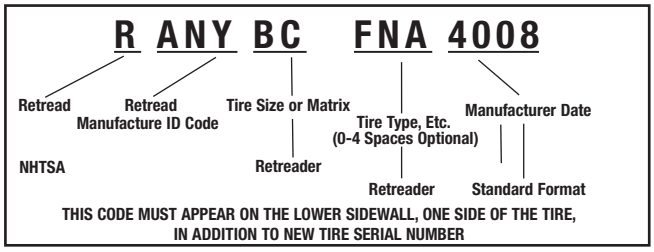
Some manufacturers cure a specific serial number into each tire they make which identifies specific tires. This optional number is located on the sidewall opposite the DOT number and should not be confused with the DOT number which is required by law. The meaning of the optional serial number, in many cases, is known only to the manufacturer.

RETREAD TIRE CODES

All retread tires must have an additional DOT code affixed to their sidewalls as well. There is no specific location designated for the retreader code; however, it is recommended that it be placed on the lower sidewall near the original tire DOT code. The National Highway Traffic and Safety Administration (NHTSA) assigns each retreader a three letter shop identification code. The retreader can designate the next two letters or digits to signify the matrix or chamber the tire was cured in or the tire size. The third group, of no more than four symbols, is optional and may be used by the retreader as a descriptive code for the purpose of identifying significant characteristics of the tire. This nomenclature is then followed by the production date of the next retread. The first two digits identify the production week and the last two digits identify the production year.


DOT
FB4K VAB 403
Optional decade identifier for odd numbered decades (i.e., 1990s)
Manufacturer and Plant
Tire Size
Tire Type Code (3-4 Spaces)
Manufacturer Date
THIS CODE MUST APPEAR ON THE LOWER SIDEWALL, ONE SIDE OF THE TIRE


Tire Type Code
Identifier for 2000 and after
DOT
FB4K VAB 02 09
Manufacturer and Plant
Tire Size
Tire Type Code (0-4 Spaces Optional)
Week of Manufacture
Year of Manufacture
THIS CODE MUST APPEAR ON THE LOWER SIDEWALL, ONE SIDE OF THE TIRE


R ANY BC FNA 4008
Retread
Retread Manufacture ID Code
Tire Size or Matrix
Tire Type, Etc. (0-4 Spaces Optional)
Manufacturer Date
NHTSA
Retreader
Retreader
Standard Format
THIS CODE MUST APPEAR ON THE LOWER SIDEWALL, ONE SIDE OF THE TIRE, IN ADDITION TO NEW TIRE SERIAL NUMBER

GUIDELINES FOR RETREADS WITHOUT MARKINGS

NOTE: DON'T USE, SELL OR RETREAD TIRES IF MANUFACTURER'S DOT MARKING HAS BEEN REMOVED, OBLITERATED OR BRANDED OVER.

Tires on which the tire manufacturer's "DOT" symbol and/or the accompanying tire identification number has been removed, must not be used or sold in the United States. The DOT marking consists of the DOT symbol followed by a 10- or 11-character tire identification number. Removal, branding over or obliteration of any portion of this DOT marking indicates that the tire is no longer suitable for any use on- or off-the road.

Some tires do not have DOT markings. Federal regulations permit the following:

- Those who retread tires for their own use and not for resale are not required to mark a tire identification number on those tires.
- Tires which are manufactured or retreaded exclusively for mileage contract purchasers are not required to bear the tire's identification number, if the tire contains the phrase, "for mileage contract use only," molded into or onto the tire sidewall.
- The DOT symbol is not required for retreaded truck tires. However, a retreader's tire identification number is required.
- Imported truck tire casings which do not have an original manufacturer's DOT labeling (as opposed to having it removed) may be retreaded.

SERVICE DESCRIPTION DESIGNATED TIRES

DEFINITIONS

Service Description – A service designation, which is distinct from the size designation, consisting of the Load Index (Single Load/Dual Load, where applicable) and Speed Symbol.

Speed Category – A category assigned to a tire which denotes the maximum speed for which the use of the tire is rated.

Speed Symbol – A symbol indicating the speed category at which the tire can carry a load corresponding to its Load Index under specified service conditions.

Load Index – A numerical code associated with the maximum load a tire can carry at the speed indicated by its Speed Symbol under specified service conditions.

SPEED SYMBOL	SPEED CATEGORY
F	50 mph (80 km/h)
G	55 mph (90 km/h)
J	62 mph (100 km/h)
K	68 mph (110 km/h)
L	75 mph (120 km/h)
M	81 mph (130 km/h)

READING LOAD INDEX CHART AND SPEED SYMBOLS

EXAMPLE:

295/75R22.5 144/141L

144 corresponds to a single tire carrying capacity of 6175 lbs at maximum cold inflation at or below 75 miles per hour. (Speed Symbol - L)

141 corresponds to a dual tire carrying capacity of 5675 lbs at maximum cold inflation at or below 75 miles per hour. (Speed Symbol - L)

LOAD INDEX CHART

The maximum load a tire can carry at various cold inflation pressures*

Load Index	KG	LBS
120	1400	3085
121	1450	3195
122	1500	3305
123	1550	3415
124	1600	3525
125	1650	3640
126	1700	3750
127	1750	3860
128	1800	3970
129	1850	4080
130	1900	4190
131	1950	4300
132	2000	4410
133	2060	4540
134	2120	4675
135	2180	4805
136	2240	4940
137	2300	5070
138	2360	5205
139	2430	5355
140	2500	5510
141	2575	5675
142	2650	5840
143	2725	6005
144	2800	6175
145	2900	6395
146	3000	6610
147	3075	6780
148	3150	6940
149	3250	7160
150	3350	7390
151	3450	7610
152	3550	7830
153	3650	8050
154	3750	8270
155	3875	8540
156	4000	8820
157	4125	9090
158	4250	9370
159	4375	9650
160	4500	9920
161	4625	10200
162	4750	10500
163	4875	10700
164	5000	11000
165	5150	11400
166	5300	11700
167	5450	12000
168	5600	12300
169	5800	12800
170	6000	13200

* For cold inflation pressures, see pages 33 & 34, load/inflation pressure tables.

PROPER MATCHING AND SPACING OF DUALS

FROM RMA - CARE AND SERVICE OF LIGHT TRUCK AND TRUCK TIRES

Paired tires should be of the same size designation, construction, tread design and as close as possible to same outside diameter. Never pair a radial and a non-radial tire as duals.

Mismatching duals forces the larger diameter tire to carry an overload, causing it to overdeflect and overheat. The smaller diameter tire, lacking proper road contact, wears faster and irregularly. Tread or ply separation, tire body breaks and blowouts can develop from mismatched duals.

DUAL MATCHING TOLERANCES

Maximum allowable diameter differences between a tire and its dual mate at equal inflation pressures.

RADIAL TIRE SIZE	RADIUS (INCHES)	DIAMETER (INCHES)	CIRCUMFERENCE (INCHES)
All	0-1/8"	0-1/4"	0-3/4"

Determine the actual difference in diameter by measuring the tires (with a steel tape) at least 24 hours after initial inflation. Matching should be done before installing tires on the vehicle. However, after tires are installed, measurements can be made by a straight edge, stationary tire meter or large square.

To avoid excessive or irregular treadwear and damage to differential, duals on tandem drive axles should not have an average difference in diameter of more than 1/4" between the two axles, whatever the tire size.

Proper spacing between duals (minimum dual spacing) is necessary for optimum tire performance. Consult tire or vehicle manufacturer's literature or representative for recommendations. If chains are used, particular care must be taken to assure adequate clearance between loaded tires to avoid damage from chains.

TIRE MIXING

There are many different truck tire sizes and constructions available today. The various radial and bias tire constructions and/or sizes should not usually be mixed on the same vehicle. Using the same tire size and construction that was specified as the original equipment for that vehicle will normally produce the best performance from the vehicle and the tires. Improper mixing of tire sizes and constructions can cause irregular/rapid tire wear, tire failure, vehicle mechanical and/or handling problems.

However, there are times when mixing of different tire sizes and constructions on a vehicle is necessary. Some mixing of tires can be allowed, if certain rules are followed. The following rules give general guidelines for proper mixing procedures:

1. Never mix different tire sizes or construction types on the same axle.
2. Bias ply tires can be mounted on steer axles and radial tires on single axle drive positions of two axle vehicles. Reversing these positions may result in handling problems.
3. Either bias ply or radial tires can be mounted on the steer axles, if the vehicle has multiple drive axles.
4. All multiple drive axles should have the same size and construction tires.
5. Tires mounted on trailers may be bias or radial, as long as all tires on each individual axle are the same size and construction.
6. No mixing of tire sizes and constructions are allowed on four-wheel-drive type vehicles (4WD).

If there are any other questions about possible tire mixing combinations, the vehicle manufacturer should be consulted before actual changes are made.

TIRE AND RIM SAFETY PROCEDURES

An inflated tire and rim can be very dangerous if misused or worn out. Many accidents, some fatal, have resulted from improper handling of, and operations with, truck rims and wheels. As a result, the U.S. Occupational Safety and Health Administration (OSHA) has issued standards regarding wheel and rim servicing (Federal OSHA Standard No. 29 CFR Part 1910.177, "Servicing Single-Piece and Multi-Piece Rim/Wheels"). It is, therefore, of the utmost importance that the precautions and instructions outlined in this Recommended Practice and the OSHA standard be carefully followed by all persons servicing truck rims and wheels to avoid personal injuries and costly damage, as well as comply with federal regulations. If conflicts occur, OSHA standard No. 29, CFR Part 1910.177 takes precedence.

TRAINING

Employers must provide a training program for all employees who service tube and tubeless tires on wheels and rims and ensure that no employee services any rim or wheel unless the employee has been trained in the safe operating procedures described in this document and the OSHA standard.

In addition, they must ensure that each employee demonstrates and maintains his or her ability to service rims and wheels in the following areas:

- Tire demounting and deflation.
- Wheel and component inspection and identification.
- Tire mounting and inflation.
- The use of restraining devices.
- Handling of rims/wheels.
- Inflation of tires mounted on a vehicle.
- Installation and removal of rims/wheels from vehicles.
- Remaining outside the rim/wheel and air blast trajectory during and after inflating the tire.

Employers must evaluate each employee's ability to perform these tasks and provide additional training if needed to ensure all employees maintain their proficiency. Current charts or rim/wheel manuals containing instructions for the type of wheels being serviced must be available in the service area.

RESTRAINING DEVICES

OSHA requires that the employer provides a restraining device for inflating tires on multi-piece wheels and tires on single-piece wheels when not bolted onto a vehicle during inflation.

Each restraining device must:

a. Be able to withstand the force transferred to it, should a wheel/rim separation occur at 150 percent of the maximum pressure for the type of tires and wheels being serviced.

b. Be able to prevent the wheel/rim components from being thrown outside or beyond the device or barrier once the assembly is placed inside the device.

c. Be physically inspected before each day's use and after any separation of the rim/wheel components or sudden release of contained air that can occur during a tire explosion.

Restraining devices that have any of the following conditions must be immediately put out of service:

- Cracks at welds.
- Cracked or broken components.
- Bent or sprung components caused by mishandling, abuse, tire explosion or rim/wheel separation.
- Pitting of components caused by corrosion.
- Any other structural damage that would decrease the effectiveness of the restraining device.

Should a restraining device be removed from service due to damage, it cannot be returned to service until it is repaired and reinspected. Devices that need structural repair requiring component replacement or rewelding must be certified by either the manufacturer or a registered professional engineer as meeting the strength requirements noted in paragraph "a" of this section.

SAFE OPERATING PROCEDURES FOR MULTI-PIECE RIMS/WHEELS

TIRE DEMOUNTING FOR MULTI-PIECE RIMS/WHEELS

All tires must be completely deflated prior to demounting. Remove the valve core to ensure complete deflation. The valve stem can be checked by running a piece of wire through the stem to make sure it is not plugged.

A tire (both tires of a dual assembly) on multi-piece rims/wheels must be completely deflated before removal from the axle in either of the following situations:

1. When the tire has been driven underinflated at 80 percent or less of its recommended pressure.

2. When there is obvious or suspected damage to the tire or wheel components.

CAUTION: Stay out of the rim/wheel and air blast trajectory during deflation.

Follow all recommended demounting procedures and use the proper well maintained tools as specified in rim/wheel manufacturer service manuals. Apply nonflammable rubber lubricant to both bead seat areas of the rim/wheel to ease demounting and reduce tire damage. See page 18 for appropriate bead lubricants. The use of volatile materials is strictly prohibited.

After demounting, inspect the rim/wheel components. Check all metal surfaces for rust or corrosion build-up, cracks in metal, bent flanges, sprung side and lock rings, deep tool marks in rings or in gutter areas. Rim bases and side or lock rings which are bent out of shape, pitted from corrosion, broken or cracked must not be used and must be rendered unusable and discarded. In addition, replace any part if there is any loss of contour or metal thickness. Do not, under any circumstances, attempt to rework, weld, heat or braze any rim components that are cracked, broken or damaged.

Clean all surfaces, especially the rim gutter mating surfaces on side and lock rings and bead seat areas. Dirt surfaces rust, scale and rubber build-up must be removed prior to tire mounting and inflation.

It is a good practice to paint the steel rim/wheel with fast drying paint after it is cleaned to prevent new rust from forming or use a rust preventative made especially for rims/wheels. Allow the paint to dry. A filter that removes moisture from the air line installed on the air inflation equipment also prevents most corrosion. These filters should be checked periodically to ensure that they are working properly and shop air tanks should be drained on a regular basis.

Rim bases and rings must be matched by size and type. This information is stamped on every part. Rim components must not be interchanged, except as noted below. See Diagram A. The size and type of both the tire and the rim/wheel must be checked for compatibility prior to assembly. Use only the recommended rim/wheel sizes for the tires in use.

Do not be careless or take chances. If you are not sure of the proper mating of the tire and rim/wheel parts, consult a rim/wheel expert. This may be the person who is servicing your fleet, the rim and wheel distributor in your area or a tire or wheel company sales engineer. If you cannot identify the rim or rings by size and type, they must be scrapped.

TIRE MOUNTING AND INFLATION FOR MULTI-PIECE RIMS/WHEELS

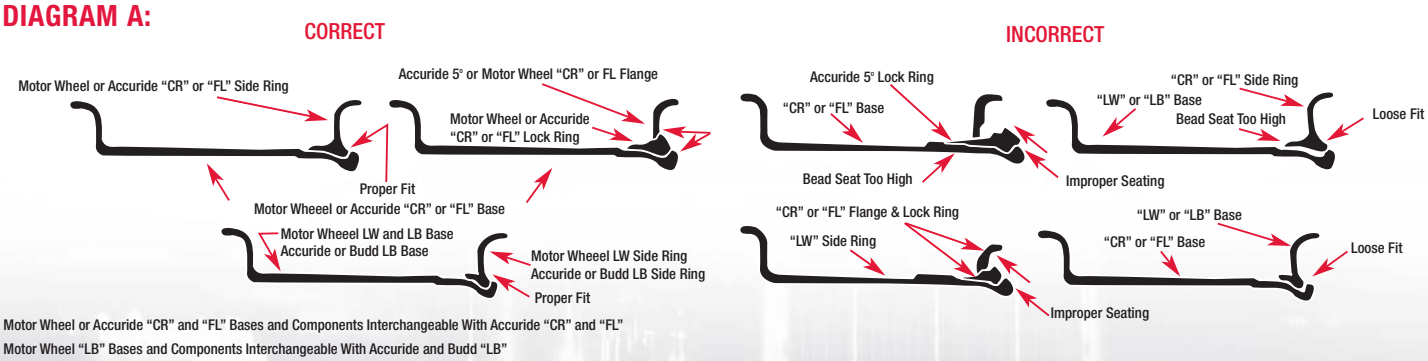
Follow recommended mounting procedures and use the proper tools as specified in rim/wheel manufacturer service manuals. Apply a nonflammable rubber lubricant to both tire beads and the rim/wheel bead seat areas to ease mounting and eliminate tire damage. The use of volatile materials is strictly prohibited. Do not use excessive force when assembling the tire and rim, as damage to rim parts and the tire can result. To reduce the possibility of damage to the tire, do not use a hammer to force the tire onto the rim since this can cause bead and inner liner damage. Use only well maintained tools that are recommended in the multi-piece rim/wheel service manual. The size and type of both the tire and the rim/wheel must be checked for compatibility prior to assembly. Use only the recommended rim/wheel sizes for the tires in use.

Tires shall be inflated outside a restraining device only to a pressure sufficient to seat the tire bead onto the rim ledge (not to exceed five psi). All tires on multi-piece rims/wheels must be inflated in a safety cage or other restraining device. Do not sit or lean on the restraining device or barrier or place equipment on it.

Tires must be inflated on the floor or where any other solid surface is within one foot of the tire's sidewall.

CAUTION: All persons must stay out of the rim/wheel and air blast trajectory when inflating a tire.

DIAGRAM A:


CORRECT
Motor Wheel or Accuride "CR" or "FL" Side Ring
Accuride 5° or Motor Wheel "CR" or FL Flange
Motor Wheel or Accuride "CR" or "FL" Lock Ring
Proper Fit
Motor Wheeel or Accuride "CR" or "FL" Base
Motor Wheeel LW and LB Base
Accuride or Budd LB Base
Motor Wheeel LW Side Ring
Accuride or Budd LB Side Ring
Proper Fit
INCORRECT
Accuride 5° Lock Ring
"CR" or "FL" Base
Bead Seat Too High
Improper Seating
"CR" or "FL" Side Ring
"LW" or "LB" Base
Bead Seat Too High
Loose Fit
"CR" or "FL" Flange & Lock Ring
"LW" Side Ring
Improper Seating
"LW" or "LB" Base
"CR" or "FL" Base
Loose Fit

Motor Wheel or Accuride "CR" and "FL" Bases and Components Interchangeable With Accuride "CR" and "FL"
Motor Wheel "LB" Bases and Components Interchangeable With Accuride and Budd "LB"

Always use a clip-on air chuck and enough air line to allow the employee to stand clear of the potential trajectory of the rim/wheel components. The air line must have an in-line valve with a gauge or a pressure regulator with a gauge preset to the desired valve. Do not exceed the inflation pressure molded on the tire sidewall or the rim/wheel maximum pressure unless a higher pressure is recommended by the manufacturer.

Recheck the multi-piece assembly after tire inflation and while still within the restraining device to make sure the rim and ring(s) are properly seated and locked. If further adjustment of the tire, rim and rings are necessary, the tire must be completely deflated before the adjustment is made.

CAUTION: Do not attempt to correct the seating of the side and lock rings of a multi-piece assembly by hammering, striking or forcing the components while the tire is still under pressure.

Tire may be inflated on the vehicle providing they have more than 80 percent of the recommended pressure and a clip-on air chuck is used to ensure that nobody is in the rim/wheel components trajectory path. All employees must stay out of the rim/wheel and air blast trajectory when inflating tires on a vehicle. Whenever multi-piece rims or wheels are handled, all persons must stay out of the rim/wheel air blast trajectory unless the employer can demonstrate that performance of the servicing requires a person's presence in the trajectory.

SAFE OPERATING PROCEDURES FOR SINGLE-PIECE RIMS/WHEELS

TIRE DEMOUNTING FOR SINGLE-PIECED RIMS/WHEELS

All tires must be completely deflated prior to demounting. Remove the valve core to ensure compete deflation. The valve stem can be checked by running a piece of wire through the stem to make sure it is not plugged. Apply a nonflammable rubber lubricant to both rim/wheel bead seat areas to ease demounting and eliminate tire damage.

Demounting tires from single-pieced rims/wheels must be done only from the narrow ledge side of the rim/wheel. Care must be taken to avoid damaging the tire beads.

TIRE MOUNTING AND INFLATION FOR SINGLE-PIECE RIMS/WHEELS

The rim/wheel must be inspected prior to tire mounting. Check all metal surfaces for rust or corrosion build-up, cracks in metal and bent flanges. Rims that are pitted from corrosion, broken or cracked must not be used and must be rendered unusable and discarded. Do not, under any circumstances, attempt to rework, weld, heat or braze any rim/wheel that is cracked, broken or damaged.

Clean the bead seat areas and rim flanges thoroughly to remove any dirt, surface rust, scale and rubber build-up prior to tire mounting and inflation. Damaged and leaky valve stems, O-rings and grommets must be replaced.

It is a good practice to paint steel rims/wheels with fast drying paint after the wheels are cleaned to prevent new rust from forming or use a rust preventative made especially for rims/wheels. Allow the paint to dry. A filter installed on the air inflation equipment to remove the moisture form the air line also prevents most corrosion. Theses filters should be checked periodically to ensure that they are working properly and air tanks should be drained on a regular basis.

The size and type of both the tire and the rim/wheel must be checked for compatibility prior to assembly. Use only the recommended rim/wheel size for the tires in use.

Apply a nonflammable rubber lubricant to both tire beads and the bead seat areas to east mounting and eliminate tire and rim damage. The use of volatile materials is strictly prohibited. Use only well maintained tools and follow mounting procedures recommended in rim manuals for single-piece rims/wheels.

From the narrow ledge side of the rim, mount the tires on steel single-pieced rims/wheels. Care must be taken to avoid damaging the tire beads during mounting. Do not use excessive force when assembling the tire and rim as damage to the rim/wheel and the tire can result.

If a tire changing machine is used to mount tires on single-piece rims/wheels, the tire must be inflated only to the minimum pressure necessary to force the tire bead onto the rim ledge while on the tire changing machine. If a bead expander is used, it must be removed before the valve core is installed and as soon as the tire bead slips onto the bead seat.

All tires on single-piece rims/wheels must be inflated in a restraining device or positioned behind a barrier which is placed between the tire and the employee, unless the rim/wheel is bolted onto a vehicle while being inflated. Do not sit or lean on the restraining device or barrier or place equipment on it. Tires must not be inflated on the floor or where any other solid surface is within one foot of the tire's sidewall.

Tires on single piece wheels may also be inflated when bolted on the vehicle with the lug nuts fully tightened.

CAUTION: All persons must stay out of the rim/wheel and air blast trajectory when inflating a tire.

Always use a clip-on air chuck with enough hose to permit the employee to stand clear of the potential trajectory of the tire and rim/wheel. The air line must have an in-line valve with a gauge or a pressure regulator with a gauge preset to the desired valve. Do not exceed the inflation pressure molded on the tire sidewall or the maximum pressure of the rim/wheel unless a higher pressure is recommended by the manufacturer. Never inflate above 40 psi to seat any tire bead. If the beads are not seated against the rim flange, stop, deflate the tire and determine the problem.

Tires may be inflated on the vehicle, providing they have more than 80 percent of the recommended pressure. A clip-on air chuck and enough air line to allow the employee to stand clear of the trajectory must be used. The air line must have an in-line valve with a gauge or a pressure regulator with a gauge pre-set to the desired value.

CAUTION: All persons must stay out of the rim/wheel and air blast trajectory when inflating a tire.

GENERAL PROCEDURES FOR MULTI-PIECE AND SINGLE-PIECE RIMS/WHEELS DURING VEHICLE OPERATIONS

Do not overload tires or rims/wheels. Ensure that the combination of load and vehicle weight does not exceed the rated load of the rims/wheels and tires used.

Do not exceed the tire or rim/wheel maximum inflation pressure. Maximum inflation pressure is usually determined by the size and ply rating of the tire, but is not to exceed the maximum inflation listed for the rim/wheel. It is also important to maintain uniform inflation in both tires of a dual assembly so the weight is equally supported.

Inspect rims/wheels for damage during engine checks and at periodic maintenance intervals. Remove and replace damaged parts.

SUMMARY

SAFE OPERATING PROCEDURES

According to the rules and regulations in OSHA Standard No. 29 CFR, Part 1910.177, employers must adopt a safe operating procedure for servicing multi-single-piece rims/wheels as outlined below. All employees who service truck wheels must be instructed in these procedures.

MULTI-PIECE RIMS/WHEELS SAFE OPERATING PROCEDURES

1. Remove the valve core to completely deflate tire before demounting them.
2. Remove the valve core to completely deflate the tire before taking the rim/wheel off the axle when inflation pressure is 80% or less of the recommended tire pressure or when there is damage to the tire or rim/wheel components.
3. Tires are to be mounted only on compatible rims/wheels having matching bead diameter and approved width.
4. Apply a nonflammable rubber lubricant on the bead and rim/wheel mating surfaces before tire and rim/wheel assembly.
5. Inflate tires only when in a restraining device. Tires with over 80 percent of the recommended pressure may be inflated on a vehicle if a clip-on air chuck is used with a regulated air line long enough to allow the employee to stand outside the trajectory.
6. When a tire is being partially inflated without using a restraining device, inflate only to a pressure sufficient to seat the tire bead onto the rim ledge (not to exceed five psi).
7. Tires must not be inflated on the floor or where any other solid surface is within one foot of the tire's sidewall.
8. When inflating a tire in a restraining device, all persons must stand clear of the trajectory.
9. Tires must not be inflated to more than the inflation pressure molded on their sidewall or the maximum pressure of the rim/wheel used, unless a higher pressure is recommended by the manufacturer.
10. After tire inflation, inspect the tire and rim/wheel components while still in the restraining device to ensure they are properly seated and locked. If adjustment is required, the tire must be completely deflated by removing its valve core while the tire is still in the restraining device before the adjustment is made.
11. Never attempt to correct the seating of side and lock rings be hammering or forcing the components while the tire is inflated.
12. Never rework, weld, braze or otherwise heat cracked, broken or damaged rim/wheel components.
13. If you cannot identify the rim or rings by size and type, they must be scrapped.
14. Stand clear whenever handling multi-piece rims/wheels. Remain out the wheel and air blast trajectory.
15. Never apply heat to a multi-piece rim/wheel or rim/wheel component.
16. Current safety and matching charts or rim manuals containing instructions for the type of wheels being serviced must be available in the service area.

REFERENCE INFORMATION

The "Safety Precautions for Mounting and Demounting Tube-Type Truck/Bus Tires Chart" and the "Multi-Piece Rim/Wheel Matching Chart" can be obtained from any of the following sources:

U.S. Department of Labor
OSHA Publication Office
200 Constitution Ave., N.W., Room N3101
Washington, D.C. 20310
(202) 523-9667

The Rubber Manufacturers Association
1400 K Street, N.W.
Washington, D.C. 20005
(202) 682-4800

Occupational Safety & Health Admin.
(See your local phone directory. Look under U.S. Government)

Current rim/wheel manuals containing instructions for handling rims/wheels are available direct from rim manufacturers or from local wheel and rim distributors. Current training videos are also available from tire and rim manufacturers and through The Maintenance Council of the American Trucking Associations, 200 Mill Road, Alexandria, VA 22314; phone (800) ATA-LINE or (703) 838-1763.

SINGLE-PIECE RIMS/WHEELS SAFE OPERATING PROCEDURES

1. Tires must be completely deflated by removing the valve core before demounting.
2. Mounting and demounting of tires must be done only from the narrow ledge side of steel rims/wheels. Apply rubber lubricant in the bead seat areas to ease demounting. Care must be taken to avoid damaging the tire beads.
3. Tires are to be mounted only on compatible rims/wheels having matching bead diameter and approved width.
4. If a tire changing machine is used, the tire can be inflated only to the minimum pressure necessary to force the tire bead onto the rim ledge while on the tire changing machine.
5. If a bead expander is used, it must be removed as soon as the assembly becomes air tight. The valve core can then be installed.
6. Tires may be inflated only when contained within a restraining device or behind a barrier or bolted on a vehicle with lug nuts fully tightened.
7. Tires must not be inflated on the floor or where any other solid surface is within one foot of the tire's sidewall.
8. All persons must stay out of the trajectory when tires are being inflated.
9. Tires must not be inflated to more than the inflation pressure molded on the tire sidewall or the maximum pressure of the rim/wheel unless a higher pressure is recommended by the manufacturer.
10. Never inflate above 40 psi to seat the tire bead. If the beads are not seated against the rim flange at 40 psi, stop, deflate the tire and determine the problem.
11. Never apply heat to a single-piece rim/wheel.
12. Cracked, broken, bent or otherwise damaged rims/wheels must not be reworked, welded, brazed or otherwise heated, but must be properly scrapped.
13. Apply a nonflammable rubber lubricant on the tire bead and rim/wheel mating surfaces before tire and rim/wheel assembly.
14. Current safety and matching charts or rim manuals containing instructions for the types of wheels being serviced must be available in the service area.

TIRE AND RIM SAFETY PROCEDURES page 14-18

SOURCE: Technology & Maintenance Council (TMC) of American Trucking Associations; 2200 Mill Road, Alexandria, VA 22314 (703) 838-1763; http://tmc.truckline.com

BEAD LUBE

Preferred materials for usage as bead lubricants are:

1. Vegetable oil soaps
2. Animal soaps

These materials will have no adverse affect on tires or rims. If the approved lubricants are applied in water solutions, they must contain 10 to 20 percent solids and a rust inhibitor. When dry, the lubricant should have no residual lubricity and should not flake from the surface upon which it is applied. It is recommended the lubricant be purchased in a ready-to-use state, decreasing the possibility of contamination due to improper dilution.

Mounting procedures and safety precautions as outlined by tire or rim manufacturers or as contained in such publications as the Rubber Manufacturer's Association care and service manuals should be adhered to.

To avoid damage to tires and rims, the following materials should not be used:

1. Petroleum oils or grease–these may have a harmful effect on the tire, tube and flaps.
2. Improper ratios of approved lubricants and water–these may have harmful effects on the tire, wheel and tube.
3. Silicone oils and emulsions–these may cause the tire to slip on its rim while in use.
4. Solvent based lubricants–these may create explosive mixtures of air and volatiles in the tire, which may result in serious injury or death.

SOURCE: Technology & Maintenance Council (TMC) of American Trucking Associations; 2200 Mill Road, Alexandria, VA 22314 (703) 838-1763; http://tmc.truckline.com

USE OF SEALANTS

Many products are available in the market which are additives designed to be installed in the mounted tire's interior chamber and are marketed to enhance inflation pressure retention or improve the tire's balance and ride characteristics, amongst other claims by their manufacturers.

The number of these products currently available in the marketplace prohibits the testing and evaluating of each and every one with Yokohama products. Therefore, it is not possible to endorse or prohibit the use of these products in Yokohama tires.

Yokohama does not recommend, endorse or prohibit additives installed in the interior chamber of its mounted tires, providing the material is not flammable and or injurious to the tire chamber or structure and does not replace air pressure as the tire's primary inflation medium.

The Yokohama Standard Limited Warranty remains in effect with the use of these additives, providing the additive is not the cause of a tire condition submitted for a warranty claim. Damages attributed to the use of an additive will be denied warranty consideration.

All Yokohama tires are designed and manufactured as pneumatic products and, as such, rely on air pressure for performance. Additives such as foam-filling installed as replacement for air inflation pressure negate all terms of the Yokohama Standard Limited Warranty.

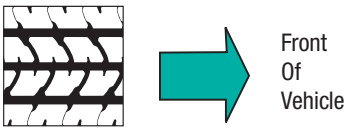
MOUNTING UNIDIRECTIONAL TIRES

UNIDIRECTIONAL TIRE MOUNTING

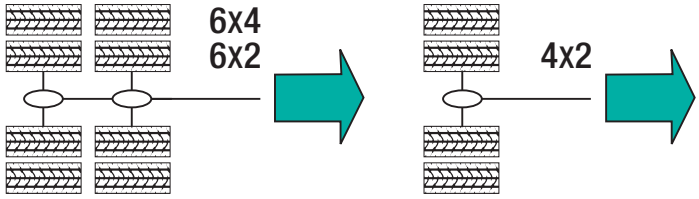
The unidirectional tread design allows for optimally shaped tread blocks that prevent block squirm, increasing tread life and reducing irregular wear. The unidirectional design provides these benefits only when mounted in the proper direction.

DIRECTION OF ROTATION

When viewed from the top, the tread pattern should face in the following direction:



As the wheel of dual drive axle applications is mounted facing opposite directions (inner wheel disk side facing out, outer wheel disk side facing in), ensure that the direction of rotation arrow on the sidewall points to the front of the vehicle with the wheel facing the correct direction.



An arrow molded on both sidewalls also indicates the proper direction of travel. With the arrow at the top, this arrow must point to the front of the vehicle when the tire is mounted.

RUN-OUT AND MATCH-MOUNTING

To facilitate proper balancing, Yokohama places red and yellow marks on the sidewalls of some truck tires to enable the best possible match-mounting of the tire/wheel assembly. There are two methods of match-mounting Yokohama tires to wheel assemblies using these red or yellow marks:

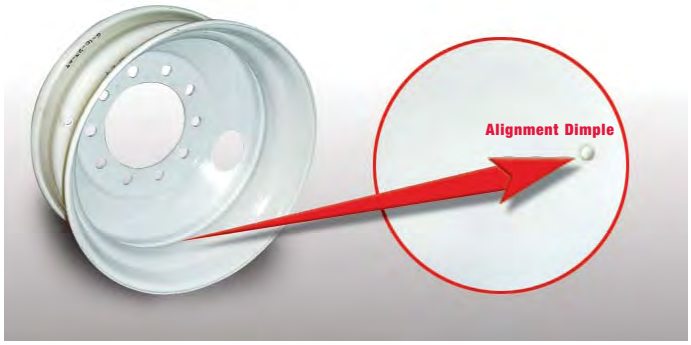
- Uniformity (red mark)
- Weight (yellow mark)

CAUTION: Improper mounting, under inflation, overloading or tire damage may result in tire failure, which may lead to serious injury. Tire and rim sizes must correspond for proper fit and application. Never exceed 40 psi to seat beads.

CAUTION: Tire changing can be dangerous and should be done only by trained persons using proper tools and procedures established by the Rubber Manufacturers Association. Failure to comply with proper procedures may result in incorrect positioning of the tire, tube or wheel assembly, causing the assembly to burst with explosive force sufficient to cause serious physical injury or death. Never mount or use damaged tires, tubes or wheel assemblies.

UNIFORMITY METHOD

When performing uniformity match-mounting, the red mark on the tire, indicating the point of maximum radial run-out, should be aligned with the wheel assembly's point of minimum radial run-out, which is generally indicated by a dimple somewhere on the wheel assembly (consult manufacturer for details). Radial force variation is the fluctuation in the force that appears in the rotating axis of a tire when a specific load is applied and the tire rotated at a specific speed. It is necessary to minimize radial force variation to ensure trouble-free installation and operation. Not all wheel assemblies indicate the point of minimum radial run-out, rendering uniformity match-mounting sometimes impossible. If the point of minimum radial run-out is not indicated on a wheel assembly, the weight method of match-mounting should be used instead.



To ensure trouble-free installation and operations, it is necessary to minimize radial run-out. The red mark on the tire, indicates the point of maximum radial run-out. It should be aligned with the wheel assembly's point of minimum radial run-out, which is generally indicated by a dimple somewhere on the wheel assembly.

WEIGHT METHOD

When performing weight match-mounting, the yellow mark on the tire, indicating the point of lightest weight, should be aligned with the valve stem on the wheel assembly, which represents the heaviest weight point of the wheel assembly. After match-mounting by either of the above methods, the tire/wheel assembly can be balanced.

For additional information on match-mounting and proper tire mounting and installation procedures contact the Rubber Manufacturers Association. RMA publications can be obtained directly by calling (202) 682-4800, www.rma.org/. Ask for "Care & Service of Truck and Light Truck Tires" publication.

TIRE BALANCE, VEHICLE RIDE AND VIBRATION

As a result of advancements in truck technology, today's tire and wheel/rim fitments require special attention. By design, radial tire construction and low aspect ratios contribute to a vehicle's ride and handling quality. Proper tire mounting, balancing and installation are critical to attaining a smooth vehicle ride. Vehicle vibration and a suspected problem tire may actually be improperly balanced or related to the mechanical condition of the vehicle.

BALANCING

The technical definition of balance is the uniform distribution of mass about an axis of rotation, where the center of gravity is in the same location as the center of rotation.

A balanced tire is one where mass of the tire – when mounted on its wheel and the truck's axle – is uniformly distributed around the axle (its center of rotation). Balanced tires can spell the difference between a positive and negative driving experience.

An out-of-balance tire and wheel assembly:

- Degrades ride quality and driver comfort.
- Shortens the life of tires, bearings, shock absorbers and other suspension components.

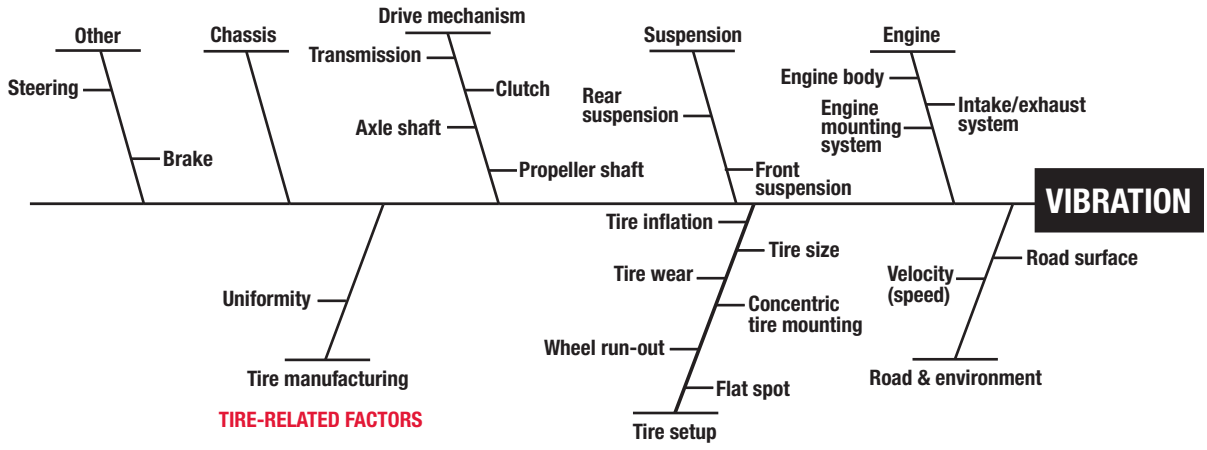
Vibration is the most noticeable effect of imbalance.

- It is dependent on vehicle speed and may be felt in the steering wheel, seats or floor board.
- It often first becomes apparent between 40 and 45 mph and changes in magnitude with greater speeds.

Because of this, Yokohama customers with ride complaints, especially those with original equipment tires, should be serviced according to Rubber Manufacturers Association (RMA) guidelines and this Yokohama bulletin. RMA publications can be obtained directly by calling (202) 682-4800, www.rma.org/. Ask for "Care & Service of Truck Tires" publication.

To properly diagnose vibration complaints, it is important to first understand the types and causes of imbalance.

VEHICLE-RELATED FACTORS Wear, rattle or component damage may cause vibration (resonance).



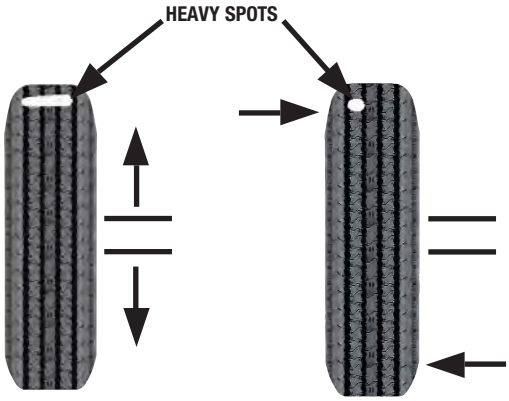
TYPES OF IMBALANCE

STATIC IMBALANCE

Vertical movement resulting from heavy or light spots in a tire. Can be corrected using either a bubble or spin balancer.

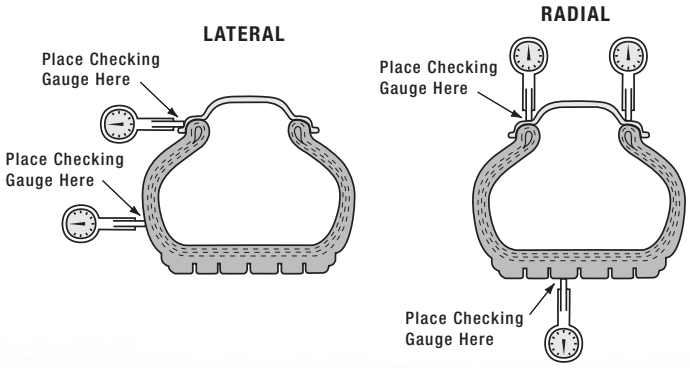
DYNAMIC IMBALANCE

Lateral movement (wobble or shimmy) resulting from unequal weight on both sides of the tire and wheel/rim assembly's circumferential centerline, can only be corrected using a spin balancer.



RUN-OUT IMBALANCE

Excessive radial and/or lateral movement resulting from tire or wheel/rim non-uniformity, improper bead seating or improper match-mounting of the tire and wheel/rim assembly. This can be corrected by measuring the amount of tire and wheel/rim assembly run-out (lateral and radial) with a gauge and replacing the component having excessive run-out or remounting the tire correctly.



VEHICLE IMBALANCE

Vibration due to faulty vehicle components other than the tire or wheel/rim assembly; such as hubs, brake rotors and drums and drive lines. Correction requires checking for any irregularities and replacement as required.

SOURCES OF IMBALANCE

Two sources of imbalance occur in tires: heavy or light spots in the tire, and radial or lateral run-out. Imbalance also can be caused by:

- Variations within the wheel, such as thickness and welds.
- Rotor and axle imbalances.

HEAVY OR LIGHT SPOT IMBALANCE

There are two types of imbalance caused by heavy or light spots, static and dynamic.

- Static Imbalance: Occurs when there is a heavy or light spot in the tire so that the tire won't roll evenly and the tire/wheel assembly undergoes an up-and-down movement.
- Dynamic Imbalance: Occurs when there is unequal weight on both sides of the tire/wheel assembly's circumferential centerline. The tire/wheel assembly has a side-to-side wobble or wheel shimmy.

HEAVY OR LIGHT SPOT BALANCING

Corrected either statically or dynamically, depending on the type of imbalance.

- Static Balance: Achieved with a bubble balancer but does not correct for dynamic imbalance.
- Dynamic Balance: Achieved with a spin balancer where the tire/wheel assembly is balanced both statically and dynamically.

RADIAL OR LATERAL RUN-OUT IMBALANCE

This results from improper bead seating on the rim or the placement of components. Improper bead seating is usually the result of improper mounting or the use of improperly made wheels. A small degree of this imbalance is acceptable, but too great a run-out causes vibration and excessive tire wear.

- Radial run-out: An "out-of-round" situation where vibrations are produced as the wheel spindle moves up and down.
- Lateral run-out: A side-to-side or wobbling movement of the tire and wheel. It is less common than radial run-out. Sensitivity of a vehicle to vibration from radial run-out is four to eight times that of wobble from lateral run-out.

RUN-OUT BALANCING

Corrected depending on whether it is radial or lateral run-out.

- Radial run-out balancing: Achieved by rotating the wheel and tire assembly two stud positions on the hub, or by rotating the tire 180 degrees on the wheel. If run-out is still over specification, check wheel run-out and mark the low point. Rotate to match the high point of the assembly run-out with the wheel low point. If the assembly run-out is still too high and the wheel is within specification, replace the tire.
- Lateral run-out: Achieved by using a run-out gauge to check both the tire and wheel. Chalk mark the highest point of run-out on both the wheel and tire. Replace whichever (wheel, tire or both) is out of specification.

VIBRATION DIAGNOSIS

1. Visually inspect tires, wheels/rims and vehicle for irregular wear, damaged wheels/rims or vehicle component damage. Replace or adjust as required.
2. Check to be certain tires are inflated according to vehicle manufacturer recommendations and the vehicle suspension is working correctly and vehicle is not tilting.
3. Check tire to be certain it is mounted properly on the wheel/rim. The tire fitting line should be concentric with the rim flange. If the tire has a yellow or red mark on the tire, it should be oriented to the rim correctly. See "Match Mounting" section.
4. Test drive vehicle on a smooth road surface and diagnose symptoms. Five to ten mile warm up is recommended to remove any flat spotting. Steering wheel vibration diagnosis should begin with front axle, wheel and tire conditions and floor or seat vibration diagnosis should begin with drive axle, wheel and tire conditions. Power train and brake conditions can be diagnosed by alternate brake application and transmission being placed in neutral during vibration.
5. Check tire wheel/rim assembly balance. Adjust as required. If unable to balance, completely deflate tire, unseat tire beads and rotate tire 180 degrees on the wheel/rim. Inflate, rebalance and reinstall on vehicle.
6. If vibration is not eliminated, measure tire and wheel/rim assembly for excessive lateral or radial run-out. Replace as required.
7. Rebalance tire and wheel/rim assembly and test drive vehicle.

BALANCING GUIDELINES

1. Equipment used to balance a tire and wheel/rim assembly must be accurate, well calibrated and professionally operated. If the tire balancer tolerance is not within specification, it must be calibrated.
2. To aid in proper balancing, some new Yokohama tires have a yellow mark on the sidewall. This mark identifies the lightest weight point of the tire. See Match Mounting section.
3. Clean deposits of foreign materials from the inside of the wheel/rim. Remove any stones from the tire tread to avoid operator injury and obtain a good balance.
4. Carefully follow the balancer manufacturer's instructions for proper mounting techniques on different types of wheels.
5. Use coated weights on aluminum wheels/rims to prevent damage to the finish.

YOKOHAMA GUIDELINES

General guidelines and acceptable limits for radial run-out on TBS tires are listed below:

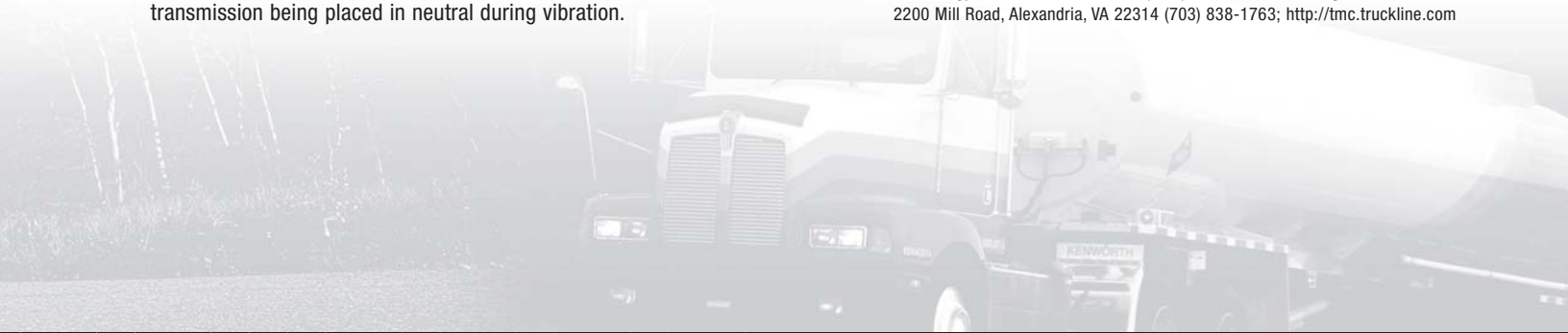
ROTATING ASSEMBLY BALANCE AND RUN-OUT LIMITS:

	Tire Position	19.5	Over The Road	Construction	Wide Base
Maximum correction wheel weights which can be added per rotating assembly	Steer	14 oz.	16 oz.	18 oz.	24 oz.
	Drive/Trailer	18 oz.	20 oz.	22 oz.	28 oz.
Lateral run-out for rotating assemly	Steer/Drive	0.095"	0.095"	0.110"	0.125"
	Trailer	0.125"	0.125"	0.125"	0.125"
Radial run-out for rotating assembly	Steer/Drive	0.095"	0.095"	0.110"	0.125"
	Trailer	0.125"	0.125"	0.125"	0.125"

ROTATING DISC WHEEL RUN-OUT LIMITS:

Tubeless steel disc wheels	Radial Run-Out	0.070"	0.075"
	Lateral Run-Out	0.070"	0.075"
Tubeless aluminum disc wheels	Radial Run-Out	0.030"	
	Lateral Run-Out	0.030"	

SOURCE: Technology & Maintenance Council (TMC) of American Trucking Associations; 2200 Mill Road, Alexandria, VA 22314 (703) 838-1763; http://tmc.truckline.com



GUIDE TO LONGER TIRE WEAR AND LOWER OPERATIONAL COSTS

Radial tire construction and vocation specific tires have dramatically improved original tire tread life, casing durability and retreadability. Despite on-going product improvements there is much a truck or fleet owner can do to increase tire life.

Maximum tire mileage depends on the tire rolling smoothly though the footprint.

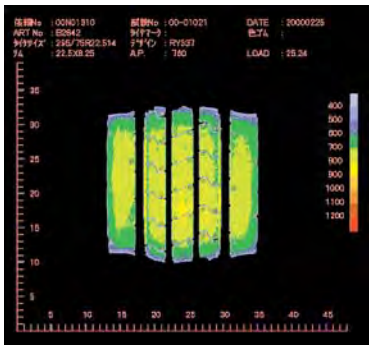
Industry experts have determined the six primary factors, which contribute to irregular wear on mechanically sound vehicles (i.e. those without bent frames or axles).

- Air pressure.
- Loose wheel bearings.
- Improper toe settings.
- Mis-aligned drive axles.
- Improper camber settings.
- Speed in excess of tire's designed speed.

AIR PRESSURE
TIRE FOOTPRINT AND LOAD

How a tire wears depends on the forces that act upon the contact patch of that tire as it meets the road. Therefore, it is important to maintain proper inflation pressure.

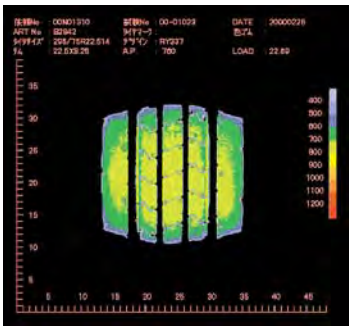
If a tire's load is equal on all ribs or elements, it tends to have a square footprint shape. The shoulder rib contact area is very long, about the same length as the center ribs. As the tire rotates, contact with the road is good.



Air pressure matched to load

194,000 mile steer tire

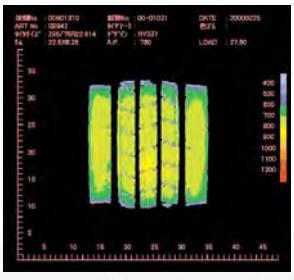
A lightly loaded tire tends to have a short shoulder rib contact area (shorter than the center rib). As this tire rotates, the footprint center maintains very good contact, but the shoulder area does not. This causes much more scrubbing action and wearing away of the shoulder rib. This type of wear is often seen on trailer with light loads and high fleet recommended air pressures.



Tire over-inflated for load

AIR PRESSURE MAINTENANCE
THE HIGH PRICE OF (UNDER) INFLATION

Proper tire inflation is perhaps a fleet's greatest daily maintenance responsibility. The relatively short time spent to check and inflate tires can save hours of potential down time, fuel, thousands of dollars in lost tire wear and damaged casings (not to mention possible vehicle and payload damage).



Tire under-inflated for load

Under-inflation by 20 percent decreases tire life by 30 percent (TMC RP233). Under-inflation will reduce the tire's original tread mileage. It will also cause premature casing fatigue, due to over-deflection and excessive heat build up in the casing. The tire above had a small penetration, which allowed it to slowly deflate. River type wear, may be seen in such tires.

Recently, Yokohama Tire conducted a test with four vehicles. Two trucks had the steer tires set at Maximum Single Inflation Pressure (110 psi). At nearly 100,000 miles, the tread shows no irregular wear.

Good Wear
LF - P468
TIRE #1 98,792 miles @ 110 psi

Good Wear
LF - P468
TIRE #2 98,792 miles @ 110 psi

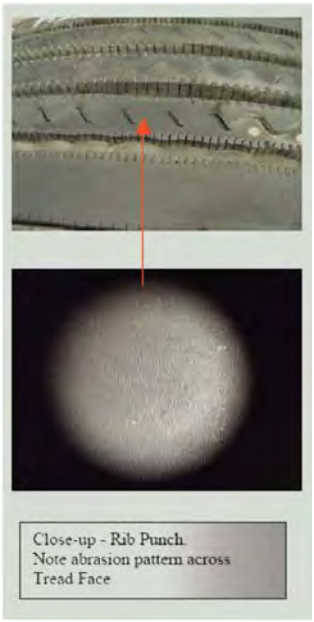
Two similar vehicles were tested at 90 psi. At less, than 50,000 miles the worn appearance was unacceptable and both drivers complained of excessive vibration.

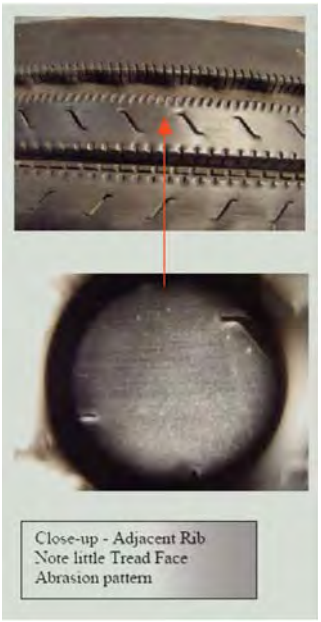
Rib Punch
RF - P467
TIRE #4 48,130 miles @ 90 psi

Rib Punch
RF - P467
TIRE #3 48,130 miles @ 90 psi

THE EVIDENCE OF (UNDER) INFLATION

Heat build-up in the casing, is caused by the excessive flexing of the tires sidewalls and tread area. The close-up photos shows the abrasion across the face of the tread where the Rib Punch Depression is seen. This abrasion is evidence of excessive flexing in the tread area of the tire.





YOKOHAMA TIRE INFLATION RECOMMENDATIONS

The following load and inflation recommendations are provided for use on all Yokohama truck/bus tires used in highway and other heavy-duty operations. The use of these guidelines will result in increased tire tread mileage, fuel economy and casing durability, while improving steering stability and overall vehicle handling.

Included within this Sales and Reference Guide are the current tire load/inflation pressure tables for all Yokohama truck/bus tires. These standards are for Yokohama tires only and should be exclusively used for the recommended tractor/trailer inflation pressure set-ups as described below.

There are two recommended ways to correctly determine and set operational inflation pressures for a straight truck or a tractor and trailer combination in a given fleet:

- Yokohama tire load/inflation charts.
- Actual vehicle weight.

Field-testing of Yokohama truck/bus tires has determined the following:

- **In General** - our tires perform best at higher inflation pressures.
- **Steer Tires** - in many fleets, steer tires will require the maximum inflation pressure to carry the steer axle load.
- **Drive Tires** - on 6 X 4 tractors, field and laboratory testing has proven that irregular wear on drive-axle tires is minimized by maintaining the inflation pressures prescribed in the following tables. However, many fleets will add +10 psi to compensate for pressure loss between airings.
- **Trailer Tires** - should be set at pressures corresponding to actual tire loading. An additional +10 psi cold inflation is recommended to compensate for pressure loss between airing for all tire positions.

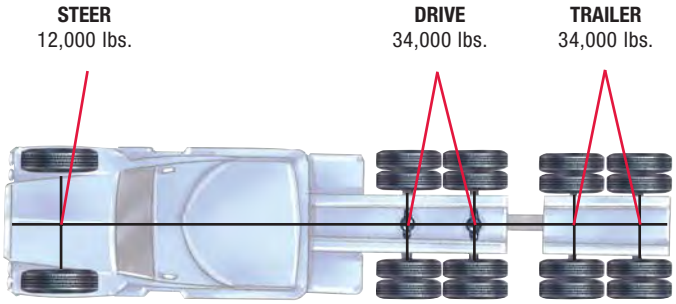
Under no circumstances should a Yokohama tire be inflated lower than the lowest pressure on the chart for a given tire size and ply rating.

YOKOHAMA TIRE LOAD AND INFLATION CHARTS

A good starting point for air pressure maintenance in regional and highway tractor/trailer operations is provided in the following example. If tire wear patterns or casing durability issues suggest tires are set at incorrect air pressures actual vehicle weightings will be required.

AN EXAMPLE

Recommendation for an 80,000 lbs. GVW operation Vehicle:
6 X 4 tractor, 48 foot long box trailer



Recommended Cold Inflation Pressures - requires truck to be parked 3-4 hours

TIRE SIZE	STEER SINGLE	DRIVE DUALS	TRAILER DUALS
295/75R22.5 (14PR)	110 psi	90 psi	90 psi
285/75R24.5 (14PR)	110 psi	90 psi	90 psi
11R22.5 (14PR)	105 psi	90 psi	90 psi
11R24.5 (14PR)	100 psi	90 psi	90 psi

Steer tires in the first three examples are set at max. cold inflation.
In all examples, the drive and trailer duals are set at 80 psi, plus 10 psi for compensation between airing.

NOTE: Never bleed excessive air from a 'hot' tire.

ACTUAL VEHICLE WEIGHTINGS

Actual vehicle weightings is the most accurate method of determining a fleet/vehicle's recommended air pressure. It should be used in non-standard vehicle configurations and on vehicles, which the tire wear pattern suggests an improper air pressure specification.

1. Determine actual tire loads.
   - Weigh several tractor/trailer vehicle combinations that best represent actual maximum load conditions for these vehicles while in operation.
   - Mathematically determine the mean or average weights per axle of these weights and divide that value by the number of tires on that axle to determine actual tire loading.

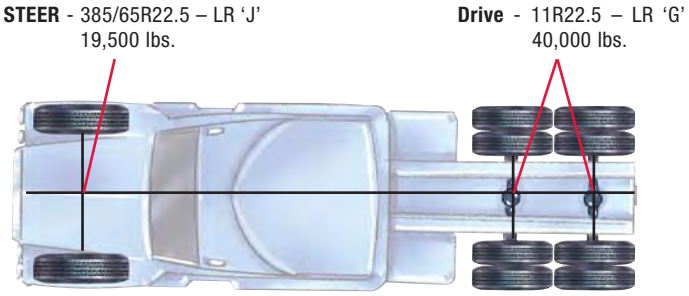
2. Determine minimum cold inflation pressures for each tire per axle.
   - Use the actual load per tire (per axle) to determine the cold inflation pressures for the tires by size, ply and type.
   - The actual tire load should be compared to the tire load limits on the chart for the particular tire size and ply rating.
   - The corresponding recommended cold inflation pressure is indicated for the load in the chart heading. *In all cases, the tire load limit on the chart should be the same or a larger amount than the actual determined tire load for the ply rating of the tire.*
   - If the actual tire loads are heavier than the ply rating of the applied tire, it may be necessary to install a tire with a higher ply rating.

3. Use the determined inflation pressures as minimum inflation values to set up the vehicle for improved handling.

   In all cases, the determined inflation pressures based on actual load conditions should be considered *minimum pressures*. Operational air pressures can be set higher, but in *no circumstances should they be set lower*.

AN EXAMPLE WITH ACTUAL VEHICLE LOADS AND TIRE SIZES
INSUFFICIENT LOAD CARRYING CAPACITY

Steer tires installed on this vehicle were insufficient to carry the load. A higher ply rated tire needs to be installed. In this example, the dual drive tires (11R22.5) are set at 90 psi, plus 10 psi for compensation between airing.



Recommended Cold Inflation Pressures - requires truck to be parked 3-4 hours

TIRE SIZE	STEER SINGLE	DUAL DRIVE
11R22.5 (14PR)	N/A	100 PSI
385/65R22.5 (18PR)	Exceeds tire's capacity	N/A
315/80R22.5 (22PR)	130 psi	90 PSI

NOTE: Never bleed excessive air from a 'hot' tire.

AIR PRESSURE MAINTENANCE

PROTECTING YOUR WORK

An important part of air pressure maintenance involves the use of high temperature, metal valve caps. The use of inflate-through caps is a labor saving choice, which is suitable for many on-highway fleets.

YOKOHAMA AIR PRESSURE RECOMMENDATIONS

These recommendations as outlined should be adopted and used for all Yokohama truck/bus tires when the tires are new and first installed on the vehicle. *If they are adopted after the tires have operated and established a wear pattern, the pressures in and by themselves will not have an effect on lessening the wear conditions or correcting an irregular wear pattern.*

The pressures will only be effective in preventing wear if used from the point of the original mounting.

Keep in mind that tires are designed, developed, and manufactured to operate at a design deflection. The design deflection is governed totally by recommended inflation pressures and varies by manufacturer. Some manufactures recommend lower inflation pressure, since their design deflection is set at that inflation pressure.

If there are any questions regarding these recommendations, please contact your Yokohama Representative.

LOOSE WHEEL BEARINGS

READING TIRE WEAR PATTERNS – TO IMPROVE DIAGNOSIS OF VEHICLE AND SUSPENSION PROBLEMS.

Loose wheel bearings often cause irregular – cupping type wear on steer tires as seen below. The wavy wear seen on the inboard (right) shoulder is typical of excessive wheel endplay. This endplay may be due to loose wheel bearings.

On dualled tires, both drive and trailer tires, loose wheel bearings often cause: inner shoulder – inner dual tire step wear.

Techniques to detect loose bearings and other worn front end components are described in materials from The Maintenance Council (TMC) of the American Trucking Association (ATA).

IMPROPER TOE SETTINGS

MORE READING STEER TIRE WEAR PATTERNS

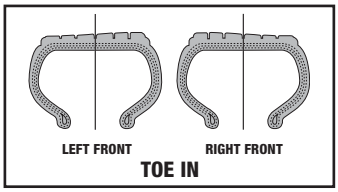
Toe wear and wear due to misaligned drive axles can be detected by rubbing your hand back and forth over the tread surface to feel for raised surfaces. Tire scrubbing will cause feathering of the tread elements. If the tread feels smooth as you slide your hand inboard and rough as you slide it outboard, this indicates **toe in**. The opposite is true for **toe out**.

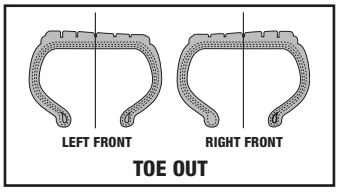
The easiest way to remember this is:

Smooth in – Toe in **Smooth out – Toe out**

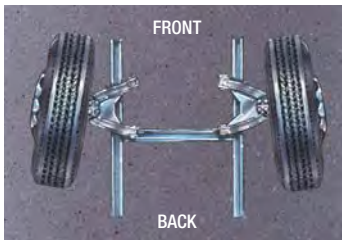
Excessive **toe in** causes premature wear on the outboard edges of both steer tires.
Excessive **toe out** causes premature wear on the inboard edges of both steer tires.

Severe toe out wear

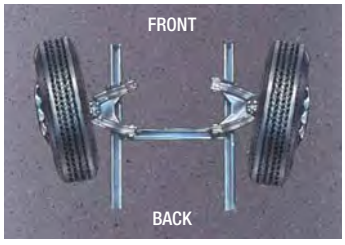




Toe is the most basic front-end setting.
Typically toe is set a 1/16” toe in (+ 1/16”).
Measured and set in a static state, **toe in** allows the wheels to run straight, when the vehicle is loaded rolling down the highway.



TOE IN : The distance between the front of the tires is less than the distance between the rear of the tires.

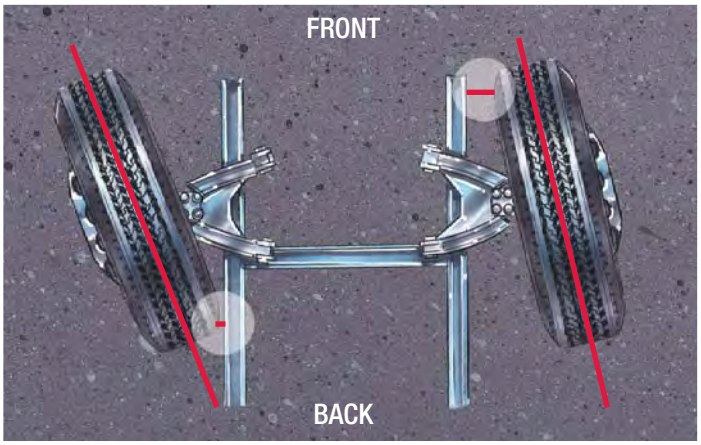


TOE OUT : The distance between the front of the tires is greater than the distance between the rear of the tires.

ACKERMAN PRINCIPLE

The geometric principle used to provide toe out on turns. The ends of the steering arms are angled so that the inside wheel turns more than the outside wheel when a vehicle is making a turn, without scrubbing the tire treads on the road surface.

"Ackerman" should be checked on all new vehicles and when the wheelbase is modified or "toe type" wear is observed, but "toe in" is correct.



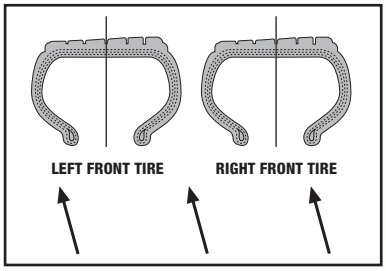
ACKERMAN PRINCIPLE: The inside wheel turns in more sharply than the outside one.

MISALIGNED DRIVE AXLES

STEER TIRE WEAR CAUSED BY MISALIGNED DRIVE AXLES

If the drive axles of a vehicle are out of alignment, you may detect the resulting wear pattern rubbing your hand across the tread surface of the steer tires.

How does it work to cause STEER TIRE WEAR?



LEFT THRUST

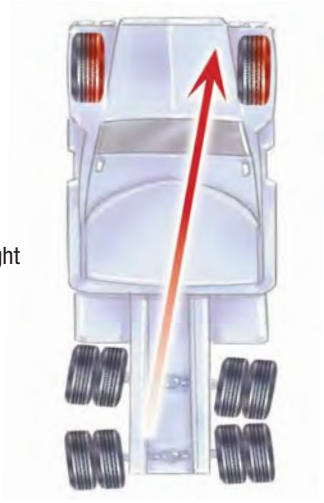
If the drive axles push the truck left

Shoulder wear occurs on the left side (outboard) side of the left front tire. Shoulder wear also occurs on the left side (inboard) side of the right front tire.

STEER TIRE WEAR CAUSED BY MISALIGNED DRIVE AXLES continued:

RIGHT THRUST

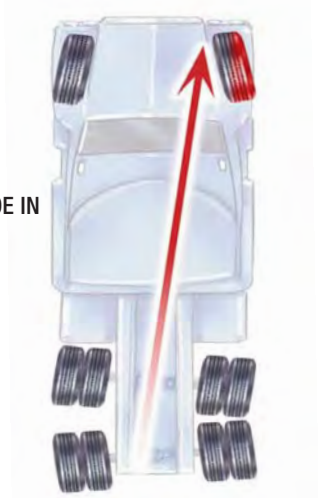
If the drive axles push the truck right



Shoulder wear occurs on the right side (inboard) side of the left front tire. Shoulder wear also occurs on the right side (outboard) side of the right front tire.

There are also combinations of toe misalignment and drive axle misalignment, whichcause scrubbing wear on only one steer tire.

RIGHT THRUST - TOE IN



Toe in with a right thrust angle causes the left front tire to wear normally, but the right front tire will have outer shoulder wear. Right thrust complaints are more common than left thrust complaints in the United States. This is due to the crowning of the roads of the interstate highway system.

RIGHT THRUST - TOE OUT

Toe out with a right thrust angle causes the right front tire to wear normally, but the left front tire will have inner shoulder wear.

Another source of right thrust:
If the drive axles are off-center (jacked to the left), it causes a situation similar to an off-center motor on a motor boat.

IMPROPER CAMBER SETTINGS

POSITIVE CAMBER WHEEL IS TILTED OUTWARD AT THE TOP

Result: Smooth, fast wear on the outer half of the steer tires.

NEGATIVE CAMBER WHEEL IS TILTED INWARD AT THE TOP

Result: Smooth, fast wear on the inner half of the steer tires.

Camber Wear – On newer trucks, camber wear should not be a major problem. *Heavy duty trucks leave the factory with zero to slightly positive camber. Unless, the tire and wheel assembly tilt is visibly obvious - it can be disregarded. Correcting camber involves either bending the front axle (which voids most manufacturer's warrantees) or replacing the axle.*

If an alignment shop print-out indicates that camber is out of spec, the front bearings should be checked. This looseness may contribute to this out of spec camber reading.

OTHER FACTORS AFFECTING TIRE WEAR AND TIRE LIFE

Factors, other than air pressure, which prevent a tire from rolling stable and straight through its footprint.

- Speed in excess of tire design - i.e. +75 mph. Speeds in excess of a tire's designed capability, lengthens the footprint. This lengthening will cause premature wear on the shoulders of the tires.

RECAP

The five major factors, which result in premature steer tire shoulder wear:

- Improper air pressure, either under-inflation or over-inflation
- Loose wheel bearings – which cause cupping type wear
- Improper toe setting – which cause one shoulder wear on both tires
- Misaligned drive axles – which causes steer tire shoulder wear on one or both tires
- Speed in excess of tire design - i.e. +75 mph

References:

RMA – Care and Service of Truck and Light Truck Tires
TMC – RP233 – Guidelines for Tire Inflation Pressure Maintenance
TMC – Guidelines for Total Vehicle Alignment
Truck Wheel Alignment – A Common Man's Guide, by Mike Beckett

TRUCK TIRE FUEL ECONOMY

FACTORS INVOLVED IN FUEL ECONOMY

VEHICLE	OPERATION
Engine	Idle/Standby
Accessories	Terrain
Driveline	Loads
Tires	Driver Behavior
	Maintenance

1. **Truck Tire Alone:** The amount of fuel used by a tire's rolling resistance varies a great deal depending on the tire design itself and the factors listed above. Engine losses dominate fuel consumption. For a typical truck running on highway routes, tires are responsible for approximately only 13 percent of fuel use. Therefore, the relationship between tire rolling resistance and fuel consumption is about 8:1 – an eight percent reduction in rolling resistance is necessary for a one percent reduction in fuel use. Factors contributing to truck tire rolling resistance are:

    a) Energy loss due to repeated deformation of the tire tread, belt and casing structure rolling through the footprint. This is also called hysteresis, in which the rotation accompanied by flexing produces intermolecular friction and converts energy into heat. The majority, around 90 percent, of the total tire rolling resistance comes from this factor.

    b) Energy loss due to friction between the tire and road surface. This is less than 10 percent of the total tire contribution.

    c) Aerodynamic resistance of the tires, this is extremely low.

2. **Truck Tire Design:** Various tire types have different rolling resistances and fuel economy ratings. Radial tires have better fuel efficiency than bias tires. The tread component of radial truck tires account for approximately one half of the tire's rolling resistance. Low skid rib designs (trailer tires) usually have better fuel economy than high skid rib designs (steer tires). And, high skid rib designs (steer tires) normally have better fuel economy ratings than high skid lug designs (drive tires). Design factors such as tread footprint size, tire construction and tread compounding can also affect tire fuel economy performance. Some tire treads contain two layers with different compounds for wear (top layer) and heat resistance (base layer). The heat resistant layer allows the tire casing to run cooler. This results in longer casing life, better tread wear/traction, lower rolling resistance and better fuel economy.

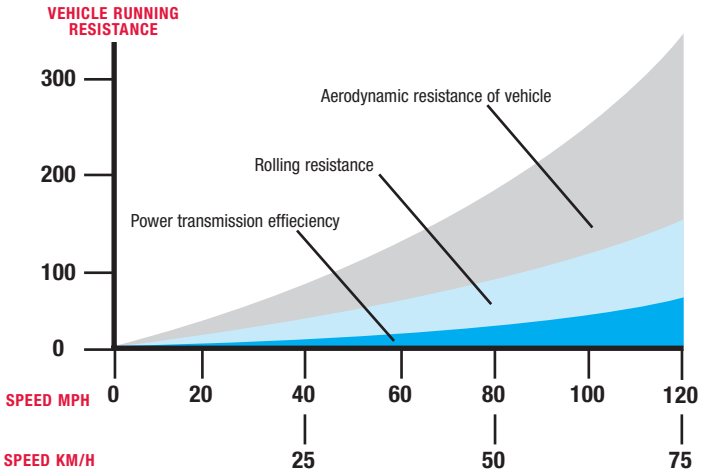
3. **Inflation Pressure Maintenance:** The correct air pressure is critical to maintain the proper stress distribution in a tire. Proper distribution of the load/stress on a tire will reduce the amount of flexing and heat buildup that can waste fuel and shorten tire life. Low air pressure will result in poorer fuel economy, irregular wear and possibly heat related tire failures. A higher than needed air pressure may improve the fuel economy, but could result in increased irregular wear and in some applications more casing impacts/tread damage. Also, the loss in fuel economy from under inflation gets much higher as you go farther down from vehicle recommendations. The lost fuel economy at 20 percent underinflation can be double the loss at 10 percent underinflation.

4. **Operating Speed:** Like air pressure the loss in fuel economy is very different depending on the speed range in question.

VEHICLE RUNNING FACTORS

- Aerodynamic resistance of vehicle
- Rolling resistance
- Power transmission efficiency
- Acceleration resistance
- Hill climbing resistance

VEHICLE RUNNING RESISTANCE AND VEHICLE SPEED



The chart shows aerodynamic loss far exceeds others as speed increases from one range to another.

TIRE STORAGE RECOMMENDATIONS

The storage of tires requires particular care. If tires are not stored properly, not only will there be deterioration in their appearance, there may be a loss in performance and compound integrity.

CONSIDERATIONS / INSPECTIONS

- Tire treads and side walls are constructed from compounds that resist deterioration caused by sunlight, ozone and extreme temperatures. Nevertheless, stored tires should be protected against these and other potentially damaging conditions. The longer the storage period, the greater exposure there is to potential damage; so it is always advisable to first use the tires that have been in storage the longest.
- Store tires in an area that is clean, cool, dark and well ventilated, but with a minimum of circulating air. Avoid areas that are wet, humid, oily, greasy or in direct sunlight. Do not store in the same area as an electric motor or other ozone generating sources. If there is a question, check the ozone level to be sure it does not exceed 0.08 ppm.
- Do not store tires directly on black asphalt or other heat-absorbent surfaces. Avoid storage adjacent to highly reflective surfaces.
- As a rule, tires should be stored in an upright position to prevent distortion or disfiguration and to make mounting work easier. If it is necessary to store tires in a horizontal position, be sure to stack passenger car and light truck radial tires no higher than one meter (3 feet), and radial truck tires no higher than one and one-half meters (4 1/2 feet).
- When storing tires that have been inflated, deflate to 50 percent of the normal pressure. Keep valve caps in place.

PRIOR TO MOUNTING STORED TIRES

Tire interior should be inspected, to determine the air chamber is free of debris, dirt and moisture. Dirt and debris can block the tire valve after mounting. Moisture can permeate the casing and initiate oxidation (rust) of steel cords, which reduces tire strength and casing integrity.

TIRES INSTALLED ON VEHICLES

Storage area should be level and well drained. Care should be taken to avoid prolonged contact with petroleum based substances: oils, fuels and asphalt. Long term storage or storage of seasonal vehicles; i.e. RV's, boat trailers and show vehicles require special preparations. Vehicles should be raised on blocks, so weight is removed from the tires.

If blocking is not possible, tire pressure should be increased 25 percent from inflation required for the loaded vehicle. Vehicles should be moved every three months to prevent flat spotting and ozone cracking at the tire sidewall flex point. Flat spots usually disappear, when the tires warm-up, after a 25+ mile drive. Flat spotting, which occurs on vehicles not moved for six or more months may not disappear.

Tires on vehicles stored outdoors, should be protected by opaque covers to prevent damage from sunlight.

PRIOR TO RETURNING VEHICLES TO SERVICE

Tire pressure needs to be adjusted to required inflation before the vehicle is returned to service.

REPLACEMENT OF TIRES ON FREQUENTLY STORED VEHICLES

Owners of RV's, boat trailers, show cars etc. should have their tires inspected by a qualified tire dealer, if sidewall cracking and crazing occurs. Remaining tread wear is a poor gauge of tire serviceability on these vehicles. Over time, the bonds between the rubber and reinforcing materials deteriorate, regardless of remaining tread. Unserviceable tires should be scrapped by cutting beads or cutting through sidewalls to prevent reuse by unsuspecting persons.

LOAD / INFLATION PRESSURE TABLES

Medium Truck Tube Type*		Tire Load Limits (lbs.) at Various Cold Inflation Pressures (psi) (Tire pressure is minimum for the load)										
Tire Size Designation		**80**	**85**	**90**	**95**	**100**	**105**	**110**	**115**	**120**	**125**	**130**
7.50R15TR	S	2580	2690	2800	2910(E)	3040	3170	3305(F)				
	D	2460	2550	2640	2755(E)	2865	2975	3085(F)				
8.25R15TR 14PR	S	3080	3200	3340	3470	3590	3750(F)	3860	3970	4080(G)		
	D	2930	3040	3150	3260	3360	3525(F)	3635	3745	3860(G)		
8.25R15TR* 18PR	S				4125	4275	4420	4565	4700	4835	4970(J)	
	D				4080	4215	4340	4465	4590	4710	4830(J)	
10.00R15TR	S	4170	4370	4540(F)	4715	4890	5070(G)	5270	5470	5675(H)	5905(J)	
	D	3980	4130	4300(F)	4470	4640	4805(G)	4990	5175	5355(H)	5435(J)	
8.25R20	S	3730	3890	4080(E)	4235	4390	4540(F)	4675	4810	4940(G)		
	D	3550	3690	3860(E)	4005	4150	4300(F)	4425	4550	4675(G)		
12.00R24	S	6980	7280	7580	8050(G)	8310	8570	8820(H)	9100	9370(J)		
	D	6650	6910	7160	7390(G)	7610	7830	8050(H)	8300	8540(J)		

*Operating speed less than 55 MPH

Light Truck Tube Type		Tire Load Limits (lbs.) at Various Cold Inflation Pressures (psi) (Tire pressure is minimum for the load)							
Tire Size Designation		**65**	**70**	**75**	**80**	**85**	**90**	**95**	**100**
7.50R16	S	2040(D)	2590	2765	2755(E)	2930	3085	3175(F)	3330(G)
	D	1820(D)	2470	2635	2470(E)	2790	3020	3020(F)	3175(G)

Light Truck Commercial Tubeless		Tire Load Limits (lbs.) at Various Cold Inflation Pressures (psi) (Tire pressure is minimum for the load)										
Tire Size Designation		**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**	**85**
7.00R15	S	1350	1480	1610	1710	1830	1940	2040(D)				
	D	1190	1310	1420	1520	1620	1715	1820(D)				
185/70R15.5	S				1345	1450	1555	1660	1760	1860	1960	2090(E)
	D				1300	1400	1500	1600	1700	1795	1890	1980(E)
LT235/85R16	S	1700	1870	2030	2205(C)	2335	2485	2620(D)	2765	2905	3040(E)	
	D	1545	1700	1845	2006(C)	2125	2260	2380(D)	2515	2645	2780(E)	
LT215/85R16	S	1495	1640	1785	1940	2050	2180	2335(D)	2430	2550	2680(E)	
	D	1360	1490	1625	1765	1865	1985	2150(D)	2210	2320	2470(E)	
8R17.5	S				1920	2075	2225	2370	2515	2660	2790(E)	
	D				1695	1830	1960	2090	2220	2345	2460(E)	

Light Truck Commercial - Tubeless-Metric High Capacity		Tire Load Limits (lbs.) at Various Cold Inflation Pressures (psi) (Tire pressure is minimum for the load)											
Tire Size Designation		**75**	**80**	**85**	**90**	**95**	**100**	**105**	**110**	**115**	**120**	**125**	**130**
215/75R17.5 G	S	2940	3095	3250	3405	3555		3750(G)					
	D	2770	2915	3060	3205	3345		3530(G)					
215/75R17.5 H	S						4065	4225	4385	4545	4705	4805(H)	
	D						3840	3995	4145	4295	4445	4540(H)	
215/70R17.5 G	S			2920	2985	3060	3195	3260	3415(G)				
	D			2755	2820	2885	3020	3085	3195(G)				
235/75R17.5 H	S							5165	5360	5550	5745	5935	6005(H)
	D							4875	5065	5245	5430	5610	5675(H)

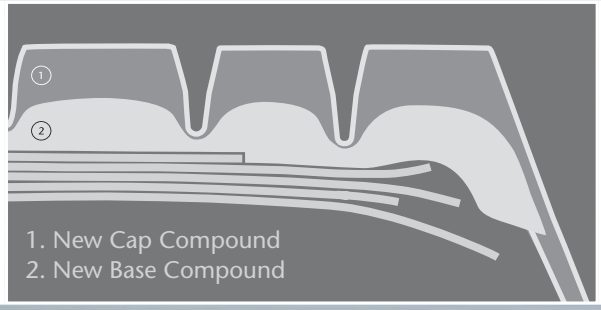
Tubeless		Tire Load Limits (lbs.) at Various Cold Inflation Pressures (psi) (Tire pressure is minimum for the load)										
Tire Size Designation		80	85	90	95	100	105	110	115	120	125	130
9R17.5HC	S	3385	3555	3730	3900	4070	4240	4410(H)				
	D	3020	3180	3335	3495	3650	3810	3970(H)				
10R17.5	S	3745	3910	4070	4225	4380	4530	4675(H)				
	D	3620	3765	3895	4030	4160	4290	4410(H)				
11R17.5HC	S		4370	4540(F)	4175	4890	5070(G)	5270	5470	5675(H)		
	D		4130	4300(F)	4470	4640	4805(G)	4990	5175	5355(H)		
9R22.5	S	3730	3890	4080(E)	4235	4390	4540(F)	4675	4810	4940(G)		
	D	3550	3690	3860(E)	4005	4150	4300(F)	4425	4550	4675(G)		
10R22.5	S	4480	4675(E)	4850	5025	5205(F)	5360	5515	5675(G)			
	D	4230	4410(E)	4585	4760	4940(F)	5075	5210	5355(G)			
11R22.5	S	4990	5220	5510(F)	5730	5950	6175(G)	6320	6465	6610(H)		
	D	4760	4950	5205(F)	5415	5625	5840(G)	5895	5950	6005(H)		
11R24.5	S	5310	5550	5840(F)	6095	6350	6610(G)	6790	6970	7160(H)		
	D	5070	5260	5510(F)	5675	5840	6005(G)	6205	6405	6610(H)		
12R22.5	S	5450	5690	6005(F)	6205	6405	6610(G)	6870	7130	7390(H)		
	D	5190	5390	5675(F)	5785	5895	6005(G)	6265	6525	6780(H)		
225/70R19.5	S	3195(E)	3315	3450	3640(F)	3715	3845	3970(G)				
	D	3000(E)	3115	3245	3415(F)	3490	3615	3750(G)				
245/70R19.5	S	3640	3740	3890	4080(F)	4190	4335	4540(G)	4620	4805(H)		
	D	3415	3515	3655	3860(F)	3940	4075	4300(G)	4345	4540(H)		
265/70R19.5	S	3970	4180	4355	4540	4685	4850	5070(G)				
	D	3750	3930	4095	4300	4405	4415	4675(G)				
285/70R19.5	S				5160	5395	5635	5785	5980	6175(H)		
	D				4850	5070	5290	5435	5555	5675(H)		
245/75R22.5	S	3860	3975	4140	4300	4455	4610	4675(G)				
	D	3525	3615	3765	3970	4055	4195	4300(G)				
265/75R22.5	S	4300	4440	4620	4805	4975	5150	5205(G)				
	D	3860	4040	4205	4410	4525	4685	4805(G)				
255/70R22.5	S	4190	4370	4550	4675	4895	5065	5205(G)	5400	5510(H)		
	D	3970	4110	4275	4410	4455	4610	4675(G)	4915	5070(H)		
275/70R22.5 16PR	S		4550	4785	5095	5325	5555	5865	6095	6405	6635	6940(H)
	D		4190	4410	4685	4905	5115	5400	5610	5895	6105	6395(H)
295/75R22.5	S	4940	5155	5370	5510(F)	5780	5980	6175(G)	6370	6610(H)		
	D	4540	4690	4885	5070(F)	5260	5440	5675(G)	5795	6005(H)		
295/80R22.5	S	5555	5820	6110	6370	6635	6900	7165	7410	7675	*	
	D	4930	5160	5400	5645	5885	6130	6350	6570	6815	*	
315/80R22.5 20PR	S		7450	7705	8045	8300	8555	8885	9125	9445	9610	10000(L)
MY627W	D		6140	6360	6645	6855	7065	7330	7540	7805	7935	8225(L)
315/80R22.5 22PR	S		7450	7705	8045	8300	8555	8885	9125	9445	9610	10000(M)
Y773	D		6140	6360	6645	6855	7065	7330	7540	7805	7935	8255(M)
285/75R24.5	S	4940	5210	5420	5675(F)	5835	6040	6175(G)	6440	6780(H)		
	D	4540	4740	4930	5205(F)	5310	5495	5675(G)	5860	6175(H)		

* 295/80R22.5 104ZR Load Range H - Max Load Single 7830 lb @ 123 PSI, Dual 6945 lb @ 123 PSI

Wide Base, Tubeless		Tire Load Limits (lbs.) at Various Cold Inflation Pressures (psi) (Tire pressure is minimum for the load)								
Tire Size Designation		80	85	90	95	100	105	110	115	120
385/65R22.5	S	6940	7350	7650	8050	8230	8510	8820	9050	9370(J)
425/65R22.5	S	8270	8740	9100	9370	9790	10100	10500(J)	10700	11400(L)
445/65R22.5	S	9090	9480	9870	10200	10600	11000	11400	11700	12300(L)

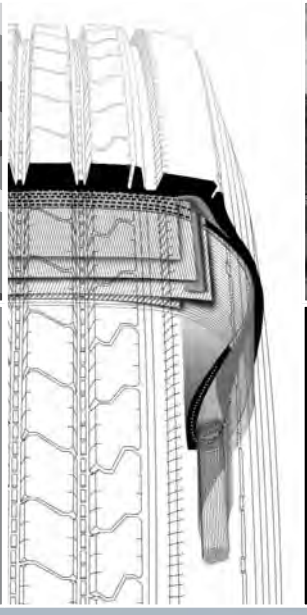
Tire load limits at various inflation pressures are based upon Tire and Rim Association (TRA) standards and tables, except where there is no specification established by the TRA. In these few cases, the tire design is based upon the European Tire and Rim Technical Organization (ETRTO) whose standards govern these tire designs. To obtain recommendations for tires run in non-standard applications, customers and dealers should contact the Yokohama Technical Service department.

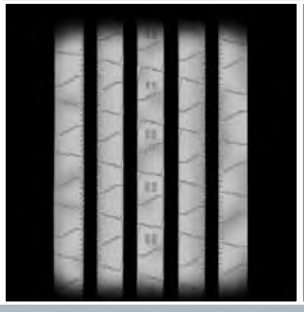
YOKOHAMA


1
2
1. New Cap Compound
2. New Base Compound

Truck and Bus Radial Tire Sales and Reference Guide

Product Line-Up





YOKOHAMA®

101ZL

TRUCK STEEL RADIAL

APPLICATION

Long-Haul, Steer Axle Applications

The 101ZL marks a new generation of long-haul steer axle tires. Incorporating the latest Zenvironment technology, it's engineered to provide low rolling resistance and excellent fuel efficiency at highway speeds, while offering a 30 percent improvement in casing durability. Combined with exceptional wet weather handling and increased tear resistance, it's easy to see why the 101ZL is setting new standards in the industry.

FEATURES AND BENEFITS

- Zenvironment construction compensates for casing growth while greatly reducing strain in shoulder and bead areas, resulting in lower rolling resistance and better fuel efficiency.
- Contact Pressure Equalizer Sipes optimize rib contact pressure to resist uneven wear and improve wet weather braking and handling.
- Stress Equalizer Ribs increase road contact at the shoulder edge, while serpentine grooves add rigidity to the shoulder rib for greater tear resistance.
- Multiple Sipes create an ideal footprint for optimal rib edge contact pressure, which helps to eliminate irregular wear.

SmartWay℠ Verified

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101ZL replaces: Michelin XZA-3 Goodyear G395 Bridgestone R287

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS.	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
295/75R22.5	71101*	14G	113	9.00	8.25	11.5	40.0	18	12.5	18.7	522	6175@110	5675@110	2800@760	2575@760	75
11R22.5	71102*	14G	120	8.25	7.50	11.0	41.3	18	12.1	19.3	505	6175@105	5840@105	2800@720	2650@720	75
285/75R24.5	71104*	14G	120	8.25	8.25	11.1	41.3	18	12.1	19.3	505	6175@110	5675@110	2800@760	2575@760	75
11R24.5	71103*	14G	128	8.25	7.50	11.1	43.3	18	12.3	20.2	481	6610@105	6005@105	3000@720	2725@720	75

Available 3rd Quarter 2010
*SmartWay Verified

RY617

TRUCK STEEL RADIAL

APPLICATION

Highway Line Haul, Steer and All-Position

FEATURES AND BENEFITS

- Five-rib Tread Design is the perfect all-position high performer. Now enhanced with over 6,000 Stress Control Sipes, this premium feature provides excellent water evacuation and uniform wear. The stress control sipes are also especially effective in combating river wear.
- Variable Contour Groove Wall provides added rib stiffness that further combats uneven treadwear.
- Stress Wear Control Groove (SCG) reduces contact pressure at the tread edge, providing increased resistance to shoulder step down wear and enhancing long even wear, particularly at the shoulder area.
- Stone Ejectors deep inside the tread grooves keep stones from embedding into the tire to minimize drill damage for increased tread durability and casing life.

SmartWay℠ Verified

STEM-2 StrainEnergy Minimization

RY617 replaces: Michelin XZA-3 Goodyear G397 Bridgestone R280

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS.	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
295/75R22.5	61701*	14G	109	9.00	8.25	10.9	40.1	18	12.0	18.7	520	6175@110	5675@110	2800@760	2575@760	75
11R22.5	61702*	14G	114	8.25	7.50	11.1	41.3	18	12.0	19.5	502	6175@105	5840@105	2800@720	2650@720	75
285/75R24.5	61703*	14G	112	8.25		10.8	41.3	18	11.8	19.8	499	6175@110	5675@110	2800@760	2575@760	75
11R24.5	61704*	14G	122	8.25	7.50	11.1	43.3	18	12.0	20.2	481	6610@105	6005@105	3000@720	2725@720	75

*SmartWay Verified

RY083A

TRUCK STEEL RADIAL

APPLICATION

Highway Line Haul, Steer and All-Position

One of Yokohama's best selling tires, RY083A is a five-rib steer axle, radial for on-highway long-haul operations. The RY083A is a solid performer for the long-haul.

FEATURES AND BENEFITS

- Five-rib Tread Design with four grooves provides excellent wet traction, superior water channel dispersion and long tread life.
- Stress Equalizer Ribs (S.E.R.) at the shoulders fight irregular wear.
- A Wide Tread combined with a 19/32'' Tread Depth enhances even wear.
- Stone Rejection Blocks in the center grooves reduce stone penetration damage.

RY083A replaces: Michelin XZA-1 Goodyear G397 Bridgestone R287/R227

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS. (INCH)	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
295/75R22.5	08307	14G	117	9.00	8.25	11.4	40.2	19	12.3	18.7	520	6175@110	5675@110	2800@760	2575@760	75
11R22.5	08333	14G	124	8.25	7.50	11.0	41.4	19	12.2	19.3	504	6175@105	5840@105	2800@720	2650@720	75
285/75R24.5	08331	14G	121	8.25		10.9	41.4	19	11.7	19.4	503	6175@110	5675@110	2800@760	2575@760	75
11R24.5	08332	14G	138	8.25	7.50	11.1	43.4	19	12.2	20.3	480	6610@105	6005@105	3000@720	2725@720	75

103ZR/104ZR

TRUCK STEEL RADIAL

APPLICATION

Regional Highway, All-Position

We created the 103ZR and 104ZR to be extraordinarily cut and chip resistant, with deeper tread depths for high scrub applications. And because we designed them using our revolutionary Zenvironment technology, they deliver exceptional mileage and the lowest rolling resistance in their class.

FEATURES AND BENEFITS

- 23/32" Original Tread Depth is the deepest in its category, for extremely long tread life and high speed durability coupled with excellent fuel economy.
- The unique Serpentine Groove Pattern is designed to reduce premature shoulder step-down and irregular wear, further preserving overall tread life.
- Our All-New Compound incorporates Zenvironment technology, which produces stronger, more pliable rubber that improves treadwear and provides low rolling resistance for better fuel efficiency.

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103ZR replaces: Michelin XZE-2 Goodyear G661 Bridgestone R260

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH) MEAS.	RIM SIZE (INCH) ALT.	INFLATED DIMENSIONS OVERALL WIDTH (INCH)	INFLATED DIMENSIONS OVERALL DIAMETER (INCH)	TREAD DEPTH (1/32")	LOADED DIMENSIONS SECTION WIDTH (INCH)	LOADED DIMENSIONS STATIC RADIUS (INCH)	LOADED DIMENSIONS RPM	MAX LOAD CAPACITY AT COLD INFLATION PRESSURE LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	MAX SPEED (MPH)
295/75R22.5	73701*	14G	118	9.00	8.25	12.0	11.5	23	12.8	18.8	517	6175@110	5675@110	2800@760	2725@720	75
295/75R22.5	73721*	16H	118	9.00	8.25	11.5	40.4	23	12.8	18.8	517	6610@120	6005@120	3000@860	2725@830	75
11R22.5	73702*	14G	123	8.25	7.50	10.9	41.7	23	12.0	19.5	500	6175@105	5840@105	2800@760	2650@720	75
11R22.5	73722*	16H	123	8.25	7.50	10.9	41.7	23	12.0	19.5	500	6610@120	6005@120	3000@830	2725@830	75
285/75R24.5	73703*	14G	124	8.25	8.25	10.9	41.7	23	11.9	19.5	500	6175@110	5675@110	2800@760	2575@760	75
11R24.5	73704*	14G	131	8.25	7.50	10.9	43.8	23	12.1	20.5	476	6610@105	6005@105	3000@720	2725@720	75
11R24.5	73724*	16H	131	8.25	7.50	10.9	43.8	23	12.1	20.5	476	7160@120	6610@120	3250@830	3000@830	75

*SmartWay Verified

104ZR replaces: Michelin XZE Goodyear G149 Bridgestone R260

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH) MEAS.	RIM SIZE (INCH) ALT.	INFLATED DIMENSIONS OVERALL WIDTH (INCH)	INFLATED DIMENSIONS OVERALL DIAMETER (INCH)	TREAD DEPTH (1/32")	LOADED DIMENSIONS SECTION WIDTH (INCH)	LOADED DIMENSIONS STATIC RADIUS (INCH)	LOADED DIMENSIONS RPM	MAX LOAD CAPACITY AT COLD INFLATION PRESSURE LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	MAX SPEED (MPH)
295/80R22.5	74734	16H	134	9.00	8.25	11.9	41.6	20	13.0	19.3	502	7830@123	6945@123	3550@850	3150@850	75
9.22.5	74731	12F	85	6.75	6.00, 7.50	9.1	38.1	17	9.9	17.9	546	4540@105	4300@105	2060@720	1950@720	75
10R22.5	74732	14G	97	7.50	6.75, 8.25	10.0	40.1	18	11.1	18.7	520	5675@115	5355@115	2575@790	2430@790	75
12R22.5	74733	16H	135	9.00	8.25	11.8	42.7	20	13.0	19.8	490	7390@120	6780@120	3350@830	3075@830	75

RY023

TRUCK STEEL RADIAL

APPLICATION

Regional Highway, All-Position

The RY023 is available in both broadline sizes as well as 19.5" sizes for specific applications. All sizes have a five-rib tread design. The semi-rounded shoulder treatment reduces shoulder tearing and step wear, and provides lateral stability and water dispersion. The RY023 series is designed for city and regional applications and has improved performance and traction.

FEATURES AND BENEFITS

- Sidewall Abrasion Guard reduces damage to sidewall caused by curbing.
- Five-rib Tread Design (with semi-rounded shoulder) reduces potential for shoulder ripping and tearing and lowers the cost-per-mile in abrasive applications; also provides excellent lateral stability and water dispersion, and improved performance and traction.
- Heavy-duty construction designed to meet demands of in-city and regional applications.

STEM
StrainEnergy Minimization

RY023 replaces: Michelin XZA, XZE Goodyear G169 Bridgestone R250

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS. (INCH)	ALT. (INCH)	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
215/75R17.5	02385*	16H	63	6.00	6.00 - 6.75	8.5	30.6	16	9.1	14.2	674	4805@125	4540@125	2180@860	2060@860	75
235/75R17.5	02386*	16H	71	6.75	6.75 - 7.50	9.4	31.7	16	10.0	14.6	661	6005@125	5675@125	2775@860	2575@860	75
225/70R19.5	02389	12F	68	6.75	6.00	8.7	31.8	16	9.4	14.8	652	3640@95	3415@95	1650@660	1550@660	75
245/70R19.5	02399	14G	80	7.50	6.75	9.7	33.3	16	10.4	15.5	628	4540@110	4300@110	2060@760	1950@760	75
265/70R19.5	02398	14G	87	7.50	8.25	10.3	34.3	17	11.1	15.8	612	5070@110	4675@110	2300@760	2120@760	75
285/70R19.5	02397	16H	96	8.25	7.50 - 9.00	11.1	35.1	17	12.1	16.3	597	6395@120	6005@120	2900@830	2725@830	75
255/70R22.5	02387	16H	91	7.50	8.25	10.1	36.6	18	10.7	17.1	570	5510@120	5070@120	2500@830	2300@830	75
295/75R22.5	02396	14G	114	9.00	8.25	11.1	40.2	19	12.1	18.7	520	6175@110	5675@100	2800@760	2575@760	75
295/75R22.5	02391	16H	115	9.00	8.25	11.1	40.2	19	12.1	18.7	520	6610@120	6005@120	3000@830	2725@830	75
11R22.5	02395	14G	117	8.25	7.50	10.8	41.4	19	12.0	19.3	504	6175@105	5840@105	2800@720	2650@720	75
11R22.5	02392	16H	118	8.25	7.50	10.8	41.4	19	12.0	19.3	504	6610@120	6005@120	3000@830	2725@830	75
285/75R24.5	02390	14G	117	8.25		10.9	41.4	19	11.8	19.2	503	6175@110	5675@110	2800@760	2575@760	75
11R24.5	02393	14G	125	8.25	7.50	10.7	43.4	19	11.9	20.0	483	6610@105	6005@105	3000@720	2725@720	75
11R24.5	02394	16H	125	8.25	7.50	10.7	43.4	19	11.9	20.0	483	7160@120	6610@120	3250@830	3000@830	75

*Trailer Service

703ZL

TRUCK STEEL RADIAL

APPLICATION

On-Highway, Line Haul, Drive-Axle Operations

The 703ZL was the first tire created from our revolutionary Zenvironment concept. Utilizing the latest advances in tire technology to offer longer treadwear and the lowest rolling resistance in its category, the 703ZL can significantly lower your operating costs for both fuel and tires.

FEATURES AND BENEFITS

- Derived from Zenvironment technology, our latest compound helps distribute contact pressure more evenly across the tread surface for longer, more even treadwear.
- The 703ZL's revolutionary casing is backed by a 7-year warranty and offers increased durability and stabilized performance over the life of the tire.
- 32/32" Original Tread Depth is the deepest of any line haul drive tire in the industry, for extremely long original treadwear.

SmartWay℠ Verified

.environment™

703ZL replaces: Michelin XD4, XDA-HT Goodyear G372 Bridgestone M726EL

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS.	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
295/75R22.5	77101*	14G	130	9.00	8.25	11.4	40.9	32	12.5	19.1	510	6175@110	5675@110	2800@760	2575@760	75
11R22.5	77102*	14G	134	8.25	7.50	11.0	42.3	32	12.1	19.7	494	6175@105	5849@105	2800@720	2650@720	75
285/75R24.5	77103*	14G	134	8.25		11.1	42.2	32	12.0	19.8	493	6175@110	5675@110	2800@760	2575@760	75
11R24.5	77104*	14G	142	8.25	7.50	11.0	44.3	32	12.2	20.7	471	6610@105	6005@105	3000@720	2725@720	75

*SmartWay Verified

TY527

TRUCK STEEL RADIAL

APPLICATION

On-Highway, Line Haul, Drive-Axle Operations

The TY527 MSC drive-axle tire meets today's modern fleet challenges for supreme performance and long life. Every feature of the TY527 is designed to maximize original tread life, durability, retreadability and to reduce rolling resistance. Together these features make the TY527 MSC the premium drive tire choice for fleets looking for the long-haul payoff during the entire life of the tire.

FEATURES AND BENEFITS

- Deepest Original Tread Depth (32/32") of any line-haul drive tire in the industry, providing long original tread wear without sacrificing high-speed durability.
- New Cap/Base Compound fights heat that might otherwise be generated by the deep tread.
- Distinctive Directional Tread Design promotes even wear.
- Edge Cover Sheet incorporates specially designed rubber that increases durability at belt edges.
- Stone Damage Prevention Grooves keep stones from reaching the bottom of the groove where premature casing damage can start.

STEM-2
StrainEnergy Minimization

See page 19 for mounting unidirectional tires.

TY527 replaces: Michelin XD4, XDA-HT Goodyear G338 Bridgestone M726EL, M726

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS. (INCH)	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
295/75R22.5	52701	14G	131	9.00	8.25	11.1	41.0	32	12.1	19.2	512	6175@110	5675@110	2800@760	2575@760	75
11R22.5	52702	14G	136	8.25	7.50	10.9	42.4	32	12.0	19.8	494	6175@105	5840@105	2800@720	2650@720	75
285/75R24.5	52703	14G	133	8.25		10.8	42.3	32	11.8	19.8	495	6175@110	5675@110	2800@760	2575@760	75
11R24.5	52704	14G	142	8.25	7.50	11.0	44.4	32	12.0	20.9	471	6610@105	6005@105	3000@720	2725@720	75

TY577

TRUCK STEEL RADIAL

AAPPLICATION

On-Highway, Line Haul, Drive-Axle Operations

FEATURES AND BENEFITS

- 30/32" Deep Groove Depth provides extremely long wear, plus a firm grip with minimum heat generation.
- Stress Wear Control Groove (SCG) reduces the occurrence of shoulder step down wear by redistributing the load on the outside rib.
- Contoured Bead Shape allows the tire to seat evenly against the rim for extremely uniform rolling. Provides long, even wear, reduced friction and smoother ride.
- Funnel-shaped Grooved Wall provides enhanced traction while reducing stone retention, increased block rigidity for added traction and even wear with superior ride comfort.
- Closed Shoulder Rib enables more rubber-to-road contact for long, even wear.
- Mud and snow rating provides outstanding traction in any weather.

SmartWay℠ Verified

STEM-2 StrainEnergy Minimization

TY577 replaces: Michelin XD4, XDA-HT Goodyear G372 Bridgestone M726

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS.	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
295/75R22.5	57701*	14G	118	9.00	8.25	11.4	40.9	30	12.4	19.1	513	6175@110	5675@110	2800@760	2575@760	75
11R22.5	57702*	14G	122	8.25	7.50	10.9	42.3	30	12.0	19.6	495	6175@105	5840@105	2800@720	2650@720	75
285/75R24.5	57703*	14G	129	8.25		10.9	42.2	30	12.0	19.6	496	6175@110	5675@110	2800@760	2575@760	75
11R24.5	57704*	14G	131	8.25	7.50	10.9	44.3	30	12.0	20.7	472	6610@105	6005@105	3000@720	2725@720	75
295/75R22.5	57721*	16H	122	9.00	8.25	11.4	40.9	30	12.4	19.1	513	6610@120	6005@120	3000@830	2725@830	75
11R22.5	57722*	16H	126	8.25	7.50	10.9	42.3	30	12.0	19.6	495	6610@120	6005@120	3000@830	2725@830	75
11R24.5	57724*	16H	136	8.25	7.50	10.9	44.3	30	12.0	20.7	472	7160@120	6610@120	3250@830	3000@830	75

*SmartWay Verified

TY517/TY517 MC²

TRUCK STEEL RADIAL

APPLICATION

On-Highway, Line Haul, Drive-Axle Operations

The TY517 is a highly efficient drive-axle, on-highway tire that delivers exceptional fuel economy, great traction and superior retreadability. The TY517 provides decreased rolling resistance, long casing life and long even wear. This is a highly capable drive axle tire.

FEATURES AND BENEFITS

- 28/32'' Rib-block Tread Depth with full-depth grooves delivers long wear and traction-grabbing power for the long haul with no compromises.
- Mud and snow rated for drive power in the toughest of road conditions.
- STEM-2 Technology for extended casing life, retreadability and durability.
- Rock Ejecting Center Groove Platform enhances casing life and retreadability.
- Three Large Circumferential Grooves provide extra wide, self-cleaning, V-shaped water dispersing grooves for improved lateral stability and long, even wear.

TY517 now available with MC² technology for even better fuel efficiency.

SmartWay SM Verified

MC² Maximized Conservation Concept

STEM-2 StrainEnergy Minimization

TY517 replaces: Michelin XDA-3 Goodyear G362 Bridgestone M720, M726

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS.	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
295/75R22.5	51701	14G	122	9.00	8.25	11.4	40.7	28	12.4	19.1	512	6175@110	5675@110	2800@760	2575@760	75
295/75R22.5	51721	16H	118	9.00	8.25	11.4	40.7	28	12.4	19.1	512	6610@120	6005@120	3000@830	2725@830	75
295/75R22.5*	51725**	16H	118	9.00	8.25	11.4	40.7	28	12.4	19.1	512	6610@120	6005@120	3000@830	2725@830	75
11R22.5	51702	14G	126	8.25	7.50	11.1	42.0	28	12.0	19.6	497	6175@105	5840@105	2800@720	2650@720	75
11R22.5	51722	16H	125	8.25	7.50	11.1	42.0	28	12.0	19.6	497	6610@120	6005@120	3000@830	2725@830	75
285/75R24.5	51703	14G	126	8.25		10.9	42.0	28	11.9	19.7	497	6175@110	5675@110	2800@760	2575@760	75
11R24.5	51704	14G	135	8.25	7.50	11.1	44.0	28	12.2	20.6	474	6610@105	6005@105	3000@720	2725@720	75
11R24.5	51724	16H	133	8.25	7.50	11.1	44.0	28	12.2	20.6	474	7160@120	6610@120	3250@830	3000@830	75

*MC²

**SmartWay Verified

TY303

TRUCK STEEL RADIAL

APPLICATION

On-Highway, Drive-Axle Operations

The TY303 is a deep tread, drive-axle workhorse for on-highway operations. Its advanced shoulder lug groove pattern promotes flat, even treadwear throughout the long life of the tire. The special tread compound not only extends tire mileage but also delivers increased fuel economy. Precise casing construction allows excellent retreadability. The TY303 is ideal for 2- or 3-axle tractors and is available in low-profile sizes.

FEATURES AND BENEFITS

- Special Tread Compound generates fuel efficiency and long tread life.
- Advanced Arrangement of Shoulder Lug Grooves promotes flat, even treadwear.
- Rib-block Tread Design combined with a 28/32" Tread Depth provides low rolling resistance, outstanding traction on snow and muddy terrain and excellent durability.

TY303 replaces: Michelin XDE-MS Goodyear G182 Bridgestone M720

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS.	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
225/70R19.5	30319	12F	72	6.75	6.00	8.7	32.0	20	9.4	15.0	651	3640@95	3415@95	1650@660	1550@660	75
265/70R19.5	30315	14G	90	7.50	8.25	10.3	34.4	21	11.2	16.0	607	5070@110	4675@110	2300@760	2120@760	75
285/70R19.5	30316	16H	99	8.25	7.5 - 9.0	11.1	35.4	21	12.1	16.4	591	6395@120	6005@120	2900@830	2725@830	75
255/70R22.5	30312	16H	98	7.50	8.25	10.0	37.0	24	10.8	17.3	563	5510@120	5070@120	2500@830	2300@830	75
295/75R22.5	30301	14G	132	9.00	8.25	11.4	40.7	28	12.3	19.0	513	6175@110	5675@110	2800@760	2575@760	75
11R22.5	30303	14G	136	8.25	7.50	11.1	42.0	28	12.2	19.6	497	6175@105	5840@105	2800@720	2650@720	75
285/75R24.5	30305	14G	136	8.25		10.9	42.0	28	11.7	19.7	496	6175@110	5675@110	2800@760	2575@760	75
11R24.5	30304	14G	145	8.25	7.50	11.1	44.0	28	12.2	20.6	474	6610@105	6005@105	3000@720	2725@720	75

SY767

TRUCK STEEL RADIAL

APPLICATION

On-Highway, Drive-Axle Operations

The SY767 is designed to provide exceptional traction capabilities throughout all four seasons. Featuring a multi-season rubber compound and optimized tread pattern, it overcomes wet, muddy and snowy conditions while providing long-lasting tread life. With the SY767, you not only get great all-weather grip, you get great mileage, too.

FEATURES AND BENEFITS

- Extensive Grooves and Sipes maximize biting edges for enhanced traction, while closed sipes increase traction without reducing block rigidity.
- Extra-wide Tread matched with 26/32" tread depth promotes great handling stability and long, even wear.
- Deep, Wide Grooves efficiently evacuate water to maximize contact with the road surface.
- Thick Undertread provides cool running for extended casing life.

STEM-2
StrainEnergy Minimization

SY767 replaces: Michelin XDN2 Goodyear G305 Bridgestone M725

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS.	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
11R22.5	76702	14G	129	8.25	7.5	10.9	41.9	26	12.1	28.3	497	6175@105	5840@105	2800@720	2650@720	75
11R22.5	76722	16H	129	8.25	7.5	10.9	41.9	26	12.1	19.6	497	6610@120	6005@120	3000@830	2725@830	75
11R24.5	76704	14G	136	8.25	7.5	10.9	43.9	26	12.1	20.5	475	6610@105	6005@105	3000@720	2725@720	75
11R24.5	76724	16H	136	8.25	7.5	10.9	43.9	26	12.1	20.5	475	7160@120	6610@120	3250@830	3000@830	75

TY287

TRUCK STEEL RADIAL

APPLICATION

Line Haul, Regional Drive

The TY287 truck commercial tire combines all-season traction with all-position capability. Engineered with the latest Yokohama technology, the TY287 provides long even wear and excellent traction in any weather.

FEATURES AND BENEFITS

- Wide Twin Straight Grooves provide outstanding water evacuation.
- Sipes located between the blocks helps control block stiffness, enabling long even wear and enhanced traction over the life of the tire.
- Open Shoulder Block Design provides increased wet and dry traction.
- Three Pitch Variation reduces noise at the shoulder, for a comfortable and quiet ride.
- Unique Center Block Shape enables increased all season traction.

OE FITMENT ON:

- Isuzu NQR '04 - '10

STEM-2
StrainEnergy Minimization

TY287 replaces: Michelin XDS2 Goodyear G622 Bridgestone M724F

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS. (INCH)	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
225/70R19.5	28701	12F	72	6.7	6.0 - 6.7	8.7	32.9	19	9.4	15.0	650	3640@95	3415@95	1650@660	1550@660	75

RY587/RY587 MC²

TRUCK STEEL RADIAL

APPLICATION

Highway Line Haul, Trailer Position

The latest in Yokohama technology has been brought to the long-haul trailer market with the RY587. With a unique combination of long, even original tread mileage, lower fuel consumption, outstanding durability and trouble-free operation, the RY587 is the perfect choice for today's long-haul trucking fleets.

FEATURES AND BENEFITS

- Ultra-long Mileage is the hallmark of this hard working trailer tire. This state-of-the-art tire will provide thousands of trouble-free miles, use less fuel and provide protection from scuffing.
- Stress Wear Control Grooves (SCG) enable long even wear, combating shoulder step-down wear. The SCG minimizes pressure at the edge of the tread, resulting in a dramatic reduction of free-rolling wear.
- Built-in Stone Ejector Ribs prevent stones from reaching the bottom of the groove where damage can occur.
- Five-rib Directional Design allows for effective water evacuation from under the tread, reduced hydroplaning and increased wet traction. Wet grip is enhanced with extra deep sipes.

RY587 now available with MC² technology for even better fuel efficiency

SmartWay℠ Verified

MC² Maximized Conservation Concept

STEM-2 StrainEnergy Minimization

RY587 replaces: Michelin XT-1 Goodyear G316 Bridgestone R195

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS.	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
295/75R22.5	58711**	14G	102	9.00	8.25	11.4	39.8	13	12.4	18.5	525	6175@110	5675@110	2800@760	2575@760	75
295/75R22.5*	58712**	14G	103	9.00	8.25	11.4	39.8	13	12.4	18.5	525	6175@110	5675@110	2800@760	2575@760	75
11R22.5	58702**	14G	107	8.25	7.5	10.9	41.0	13	12.0	19.3	506	6175@105	5840@105	2800@720	2650@720	75
285/75R24.5	58703**	14G	107	8.25		10.9	41.0	13	11.8	19.2	508	6175@110	5675@110	2800@760	2575@760	75
11R24.5	58704**	14G	115	8.25	7.5	10.9	43.0	13	12.0	20.0	485	6610@105	6005@105	3000@720	2725@720	75

*MC²

**SmartWay Verified

RY103

TRUCK STEEL RADIAL

APPLICATION

On-Highway / In-City, Low-Profile, All-Position

The RY103 is available in a number of sizes for special applications and is recommended for light-duty vans and pickups. The versatile and reliable RY103 incorporates low-profile engineering with proven quality construction for more miles-per-gallon, greater tier mileage, more payload potential, improved handling and better stability in steer, drive, trailer and dolly applications.

FEATURES AND BENEFITS

- Straight Five-rib Tread Design with four grooves inhibits stone retention, promotes even wear and provides a smooth ride, improved handling and superior wet traction.
- Wide Shoulder Ribs reduce shoulder step wear.
- Each size is manufactured with a specific tread depth to meet a greater range of applications.

STEM
StrainEnergy Minimization

RY103 replaces: Michelin XZA Goodyear G169 Bridgestone R250

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS.	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
245/75R22.5	10302	14G	85	7.50	6.75	9.7	37.3	17	10.4	17.5	558	4675@110	4300@110	2120@760	1950@760	75
265/75R22.5	10304	14G	98	7.50	8.25	10.0	38.4	17	10.8	18.1	541	5205@110	4805@110	2360@760	2180@760	75
275/70R22.5	10382	16H	108	8.25	7.5	10.8	37.7	17	11.6	17.6	553	6610@125	6175@125	3150@900	2900@900	75

Y785R

TRUCK STEEL RADIAL

APPLICATION

On-Highway / In-City, All-Position

The Y785R is ideal for all-position radial tire use for in-city haulers such as package-delivery vehicles, oil-delivery vehicles, light-duty vans and pickups. It has proven for over a decade that it's an excellent tire in its class and that it delivers great fuel economy. Its straight, five-rib tread design promotes even treadwear and together with the wide shoulder ribs, delivers a smooth ride, easy handling and improved shoulder step wear. It's manufactured in a number of specialty sizes for specific applications including low platform, heavy load and on/off road.

FEATURES AND BENEFITS

- Straight Five-rib Tread Design with Four Wide Grooves reduces stone retention and provides a smooth ride, improved handling and superior wet traction.
- Wide Shoulder Ribs reduce shoulder step wear.
- Extremely Fuel-efficient Compounds ensure ultimate fuel economy while providing excellent integrity and durability.

Y785R replaces: Michelin XZA Goodyear G149 Bridgestone R187

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS (INCH)		TREAD DEPTH (1/32")	LOADED DIMENSIONS (INCH)			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS.	ALT.	OVERALL WIDTH	OVERALL DIAMETER		SECTION WIDTH	STATIC RADIUS	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
8.25R15 HC	78503	18J	70	6.50	6.00, 6.50, 7.00	9.1	33.0	15	10.0	15.3	635	4970@125	4830@125	2225@860	2190@860	65
10.00R15 TR	78513	14G	99	7.50	7.00 - 8.00	10.7	36.3	18	11.8	16.9	577	5070@105	4805@105	2300@720	2180@720	65
10.00R15 TR	78551	18J	103	7.50	7.00 - 8.00	10.7	36.3	18	11.8	16.7	580	5905@125	5435@125	2680@860	2465@860	60
9R17.5 HC	78507	16H	68	6.75	6.75 HC	9.1	33.0	15	9.8	15.3	635	4410@110	3970@110	2000@760	1800@760	65
10R17.5	78515	16H	79	7.50	6.75 - 7.50	9.8	33.9	17	10.6	15.8	616	4675@110	4410@110	2120@760	2000@760	60
11R17.5 TR	78526	16H	95	8.25	8.25 HC	10.7	36.3	18	11.7	16.8	577	5675@120	5355@120	2575@830	2430@830	65
8.25R20	78504	14	81	6.50	6.00 - 7.00	9.1	38.1	15	9.9	17.8	548	4940@120	4675@120	2240@830	2120@830	75
9R22.5	78512	12F	84	6.75	6.00 - 7.50	8.9	38.1	15	9.7	17.8	547	4540@105	4300@105	2060@720	1950@720	65
10R22.5	78525	14G	97	7.50	6.75	9.9	40.0	16	10.8	18.7	520	5675@115	5355@115	2575@790	2430@790	75

LY053

TRUCK STEEL RADIAL

APPLICATION

On- and Off-Highway, Drive-Axle Operations

An aggressive, drive-axle radial for off-road use, the LY053 is ideal for use in logging, construction, or rock and quarry operations, with some very short on-highway use possible. The LY053 is an excellent choice for on-and-off road surfaces. It is designed primarily to deliver good tire mileage in applications that require outstanding traction and cutting/chipping resistance.

FEATURES AND BENEFITS

- Aggressive Lug Design with Large Blocks at tread center provides excellent traction and braking on rough roads with mud or gravel and is self-cleaning for ease of maintenance.
- Wide Tread Footprint combined with a 31/32" tread depth ensures excellent tire mileage.
- Thick Undertread protects against cuts for excellent retreadability.
- Newly Developed Steel-cord Top Belt helps protect against penetration damage and rust while minimizing tread distortion and heat generation.
- Special Tread Compounds resist fatigue, chipping and scaling in rugged off-road conditions.

STEM
StrainEnergy Minimization

LY053 replaces: Michelin XDY-3, XDY-2 Goodyear G177 Bridgestone L320

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS.	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
11R22.5	05305	16H	140	8.25	7.50	10.7	42.2	31	11.6	19.8	494	6610@120	6005@120	3000@830	2725@830	65
11R24.5	05306	16H	150	8.25	7.50	10.9	44.2	31	11.7	20.7	471	7160@120	6610@120	3250@830	3000@830	65

501ZA

TRUCK STEEL RADIAL

APPLICATION

On- and Off-Highway, All-Position

The 501ZA is an excellent choice for on- and off-highway use. It features a unique compound for excellent cut and chip resistance when hauling heavy loads off the beaten path, yet it's also engineered to effectively dissipate the heat generated by extended highway driving. And because it utilizes our exclusive Zenvironment technology, the 501ZA delivers longer treadwear with low rolling resistance.

FEATURES AND BENEFITS

- Our innovative Zenvironment Cap and Base Compound produces a stronger, yet more pliable rubber for excellent cut and tear resistance off-road and cooler operating temperatures at highway speeds.
- 26/32" Original Tread Depth is the deepest of any all-position on- and off-road tire in the industry, for longer treadwear and greater value.
- The 501ZA's Unique Casing offers stabilized performance over the life of the tire, resulting in longer casing life and better retreadability.
- The Contoured Bead Shape of the 501ZA makes mounting and dismounting easier and prevents air loss.

5001ZA replaces: Michelin XZY-3 Goodyear G288 Bridgestone M843

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS (INCH)		TREAD DEPTH (1/32")	LOADED DIMENSIONS (INCH)			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS.	ALT.	OVERALL WIDTH	OVERALL DIAMETER		SECTION WIDTH	STATIC RADIUS	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
11R22.5	75722	16H	125	8.25	7.50	10.9	42.0	26	12	19.7	496	6610@120	6005@120	3000@830	2725@830	65
11R24.5	75724	16H	136	8.25	7.50	10.9	44.1	26	12	20.6	473	7160@120	6610@120	3250@830	3000@830	65

MY507

TRUCK STEEL RADIAL

APPLICATION

On- and Off-Highway, All-Position

The MY507 is an ideal all-position, conventional profile radial tire for on-and-off-highway logging, cement and construction operations. It utilizes Yokohama's revered STEM-2 technology to dramatically improve strain energy dispersion for improved retreadability and longer overall casing life. This tire's sturdy, wide-tread construction and thick undertread protects against cutting and chipping. With up to a 26/32" tread depth, the MY507 delivers incredible steer-axle and overall mileage during original tread life.

FEATURES AND BENEFITS

- Four Rugged, Contra-diagonal Ribs with Aggressive Buttressed Shoulders give full directional and steering stability on steering axles, as well as excellent traction and braking on drive axles.
- Newly Developed Steel Cord Top Belt helps protect against rust and stone penetration damage, while also minimizing tread distortion and heat generation.

STEM-2
StrainEnergy Minimization

MY507 replaces: Michelin XZY-2, XZY-3 Goodyear G288 Bridgestone M843

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS.	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
255/70R22.5	50705	16H	94	8.25	7.50	10.0	36.8	20	10.8	17.2	567	5510@120	5070@120	2500@830	2300@830	75
275/70R22.5	50710	16H	118	8.25	7.50	10.9	38.1	22	10.8	17.7	548	6940@130	6395@130	3150@900	2900@900	75
11R22.5	50702	16H	129	8.25	7.50	10.8	42.1	26	12.0	19.7	495	6610@120	6005@120	3000@830	2725@830	65
11R24.5	50704	16H	138	8.25	7.50	10.9	44.1	26	12.1	20.7	472	7160@120	6610@120	3250@830	3000@830	65

MY627W

TRUCK STEEL RADIAL

APPLICATION

All-Position, Waste/Sanitation

The all-new MY627W is engineered to meet the rugged demands of front load residential waste vehicles. It incorporates an extra-durable casing that resists chips and cuts and features a specially-engineered bead area that dissipates heat buildup at higher speeds. This not only allows the MY627W to tackle greater distances over highways, it also gives it the durability to last through multiple retreads.

FEATURES AND BENEFITS

- The MY627W's Wide Outside Rib with extra-wide serpentine grooves resists tears and its irregular surface shape significantly improves traction.
- An Extra-durable Casing allows it to be safely retreaded over and over again.
- Bead Area/Sidewall Indentations dissipate heat during stop-and-go driving, which prolongs casing life and helps maintain the integrity of the rubber.
- Double-nylon Chafer creates extra protection around the bead for added durability during mounting and dismounting.

The Yokohama 315/80R22.5 MY627W (20) tires were specially developed for sanitation vehicle operations that require a high load-carrying capacity per tire, cut protection, long-wearing tread compound and a durable casing that allows multiple retreads. These tires were also designed for smooth, even wear, good traction and fuel economy. Since it is a special design, they must be installed and operated only on sanitation vehicles in accordance with the following guidelines:

1. During its original tread life, the tire must be mounted on a 9.0" or 9.75" rim width.
2. Only after the tire has been retreaded may it be installed on an 8.25" rim.
   The buff radius at retread must be 27" to accommodate the 8.25" rim width.
   The load should be limited to7160 lbs @130 psi - dual only.
3. Tires to be reinstalled on 9.0" rim widths after retreading must be buffed to 28" before the retread is installed and the retreading process is completed.
4. Vehicle speeds should not exceed 65 miles per hour.
5. Normal maintenance procedures involving inflation pressures, repairs or retreading must be performed according to Yokohama's recommendations and those of the retread and repair material manufacturers.
6. If the rim/wheel specifications state a lower maximum weight-carrying capacity at a lower maximum air pressure than the tire, the maximum load-carrying capacity of the tire is lessened. That, in turn, governs the maximum load capacity of the tire/wheel assembly.

NOTE

A tire upgrade alone, does not upgrade the carrying capacity of the front axle of the vehicle.

To legally and safely carry 20,000 lbs. on the front axle requires front end components, wheels and tires to all be rated at 20,000 lbs.

- Wheel ratings are stamped on the wheel.
- Axle capacities can be verified by checking the vehicle line sheet, or contacting the axle manufacturer with the axle tag number.
- Carrying capacities of tires are marked on the sidewall.

CAUTIONS

The 20 ply rated MY627W is appropriate for use on vehicles with front axle capacities of either 18,000 lbs. or 20,000 lbs. The design rim width is 9.00 inches for this tire. Maximum air pressure is 130 psi for this tire.

SUMMARY

The legal and maximum carrying capacity in these applications, is dependent on the lightest rated item: tire, wheel or front suspension/steering component.

Operational Speed: 65 mph

MY627W replaces: Michelin XZ-US Goodyear G287HSS Bridgestone M860

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS (INCH)		TREAD DEPTH (1/32")	LOADED DIMENSIONS (INCH)			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS.	ALT.	OVERALL WIDTH	OVERALL DIAMETER		SECTION WIDTH	STATIC RADIUS	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
315/80R22.5	62701	20	153	9.0	9.75	12.3	42.8	23	13.7	19.7	491	10000@130	8255@130	4540@900	3745@900	65

Available 2nd Quarter 2010

Y773/MY547

TRUCK STEEL RADIAL

APPLICATION

On- and Off-Highway, All-Position

The Y773 and MY547 are all-position, conventional-profile radial tires for on-and-off-highway logging, cement and construction operations. Available in a range of sizes, these tire's sturdy wide-tread construction and thick undertread protects against cutting and chipping. The top belt of newly developed steel cord material protects these tires against stone penetration and provides outstanding retreadability.

FEATURES AND BENEFITS

- Five Rugged, Contra-diagonal Ribs with Aggressive Buttressed Shoulders give full directional and steering stability on steering axles, as well as excellent traction and braking on drive axles.
- Newly Developed Steel Cord Top Belt helps protect against rust and stone penetration damage, while minimizing tread distortion and heat generation.

STEM
StrainEnergy Minimization

The Yokohama 315/80R22.5 Y773 (22) tires were specially developed for sanitation vehicle operations that require a high load-carrying capacity per tire, cut protection, long-wearing tread compound and a durable casing that allows multiple retreads. These tires were also designed for smooth, even wear, good traction and fuel economy. Since it is a special design, they must be installed and operated only on sanitation vehicles in accordance with the following guidelines:

1. During its original tread life, the tire must be mounted on a 9.0" or 9.75" rim width.
2. Only after the tire has been retreaded may it be installed on an 8.25" rim.
   The buff radius at retread must be 27" to accommodate the 8.25" rim width.
   The load should be limited to7160 lbs@130 psi - dual only.
3. Tires to be reinstalled on 9.0" rim widths after retreading must be buffed to 28" before the retread is installed and the retreading process is completed.
4. Vehicle speeds should not exceed 65 miles per hour.
5. Normal maintenance procedures involving inflation pressures, repairs or retreading must be performed according to Yokohama's recommendations and those of the retread and repair material manufacturers.
6. If the rim/wheel specifications state a lower maximum weight-carrying capacity at a lower maximum air pressure than the tire, the maximum load-carrying capacity of the tire is lessened. That, in turn, governs the maximum load capacity of the tire/wheel assembly.

NOTE

A tire upgrade alone, does not upgrade the carrying capacity of the front axle of the vehicle.

To legally and safely carry 20,000 lbs. on the front axle requires front end components, wheels and tires to all be rated at 20,000 lbs.

- Wheel ratings are stamped on the wheel.
- Axle capacities can be verified by checking the vehicle line sheet, or contacting the axle manufacturer with the axle tag number.
- Carrying capacities of tires are marked on the sidewall.

CAUTIONS

The 22 ply rated Y773 is appropriate for use on vehicles with front axle capacities of either 18,000 lbs. or 20,000 lbs. The design rim width is 9.00 inches for this tire. Maximum air pressure is 130 psi for this tire.

SUMMARY

The legal and maximum carrying capacity in these applications, is dependent on the lightest rated item: tire, wheel or front suspension/steering component.

Operational Speed: 65 mph

Y773 replaces: Michelin XZY-2,XZY-4 Goodyear G287 Bridgestone M844

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS.	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
315/80R22.5	77365	22M	153	9.0	9.75	12.3	42.6	21	13.5	19.7	492	10000@130	8255@130	4500@900	3745@900	65
12R22.5	77322	16H	139	9.0	8.25	11.5	42.7	20	12.6	20.0	488	7390@120	6780@120	3350@830	3075@830	65

MY547 replaces: Michelin XZY-3, XZY-2 Goodyear G286 Bridgestone M857, M843, R296

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS.	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
12.00R24	54730	18J	167	8.5	9.0	12.3	48.1	23	13.7	22.4	593	8820@110	8050@110	4000@758	3651@758	65

MY507A

TRUCK STEEL RADIAL

APPLICATION

Wide Base, On- and Off-Highway, All-Position

The MY507A is designed to provide outstanding durability and tire life for wide base on-and-off-highway applications. Equipped with the latest Yokohama technology, the MY507A extends casing life in tough applications.

FEATURES AND BENEFITS

- High Strength Belt Construction for added durability in off-highway applications.
- Stone Ejectors in tread grooves for added durability and retreadability.
- STEM-2 Casing Profile for internal strain reduction and longer casing life.
- Special Anti-chip Tread Compound for on-and-off-highway durability.
- Additional Steel Reinforcement in the bead area gives added protection against bead damage.
- Funnel-shaped Grooves provides improved traction in off-highway applications.

STEM-2
StrainEnergy Minimization

MY507A replaces: Michelin XZL Goodyear G178 Bridgestone M844F

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS (INCH)		TREAD DEPTH (1/32")	LOADED DIMENSIONS (INCH)			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS.	ALT.	OVERALL WIDTH	OVERALL DIAMETER		SECTION WIDTH	STATIC RADIUS	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
385/65R22.5	50751	18J	178	11.75	12.25	14.9	42.6	23	16.0	19.7	492	9370@120	N/A	4250@830	N/A	65
425/65R22.5	50752	20L	203	13.00	11.75,12.25	16.5	44.6	23	17.9	20.5	470	11400@120	N/A	5170@830	N/A	65
445/65R22.5	50753	20L	220	14.00	13.00	17.7	45.7	24	18.9	21.0	459	12300@120	N/A	5600@830	N/A	65

RY253

TRUCK STEEL RADIAL

APPLICATION

Wide Base, On-Highway, All-Position

The RY253 is a low-profile, wide-base, all-position radial for on-highway line haul operations. This wide-base performer offers several advantages over dual tire assemblies: lower initial cost, greater payload potential, better fuel economy and easier maintenance.

The six-rib tread design delivers top traction in wet driving conditions and excellent lateral stability. Special tread compounds generate less heat to provide reliable high-speed operation and extend the life of the tire.

FEATURES AND BENEFITS

- Heat-resistant Tread Compounds produce a cool-running tire.
- Six-rib Tread Design provides superior traction on wet roads, a smooth ride and even wear.
- Wide, Rigid Shoulder Ribs help prevent sidewall cutting and scuffing.
- Special Risers in the groove corners and Stone-rejection Blocks in the center groove reduce stone penetration for improved casing life. They also reduce irregular wear abuse by stone retention.
- Specially Reinforced Bead Construction (highly turned-up body ply with a one-ply steel/two-ply nylon chafer construction) increases bead area durability for high-load operations and retreadability.

STEM
StrainEnergy Minimization

RY253 replaces: Michelin XTE-2 Goodyear G286ASS Bridgestone R194

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE				MAX SPEED (MPH)
				MEAS. (INCH)	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL	
385/65R22.5	25301	18J	171	11.75	12.25	14.8	42.3	19	15.7	19.6	495	9370@120	N/A	4250@830	N/A	65
425/65R22.5	25304	20L	198	13.00	11.75,12.25	16.5	44.3	19	17.6	20.5	473	11400@120	N/A	5170@830	N/A	65
445/65R22.5	25302	20L	220	14.00	13.0	17.7	45.7	20	18.9	21.0	459	12300@120	N/A	5600@830	N/A	65

Y788R

LIGHT TRUCK COMMERCIAL

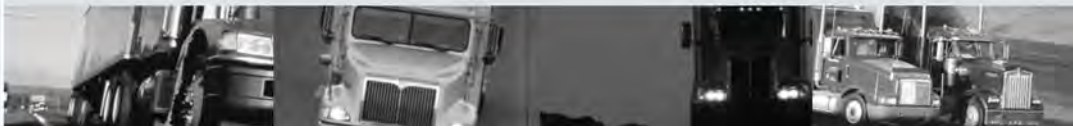
APPLICATION

Highway Steel Belted Radial Rib

Designed to stay on course no matter the driving conditions, the Y788R provides on-highway stability and high-load durability that cover all the bases. The Y788R is an ideal steer tire.

FEATURES AND BENEFITS

- Center Rib follows the road for a smoother ride.
- Wide Shoulder Ribs add miles to tread life.
- Five-rib, Wide-shoulder-groove Tread Design for superior stability and grip.
- Heavy-duty, Two Ply Steel Belts deliver handling stability and puncture resistance.
- Polyester Body Plies increase your comfort on the road.



TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE			
				MEAS.	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL
LT215/85R16	78812	10E	42	6.0	5.5-7.0	8.5	30.4	13	9.0	14.1	683	2680@80	2470@80	1215@550	1120@550
LT235/85R16	78810	8D	47	6.5	6.0-7.0	9.3	31.7	14	10.1	14.7	655	2623@65	2381@65	1190@450	1080@450
LT235/85R16	78809	10E	49	6.5	6.0-7.0	9.3	31.7	14	10.1	14.7	655	3042@80	2778@80	1215@550	1260@550

TY213A

LIGHT TRUCK COMMERCIAL

APPLICATION

Highway Steel Belted Radial Rib

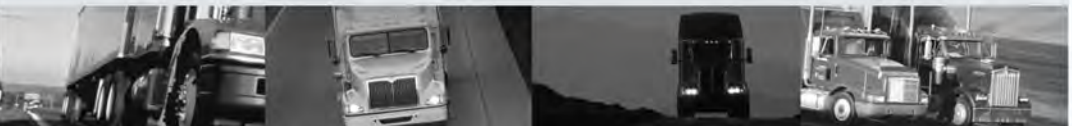
The TY213A is designed for all-position use in commercial light truck applications. The five-rib tread design offers outstanding stability and water drainage for highway or urban use. The constant contact tread block keeps an optimum amount of rubber on the road for improved handling and resistance to irregular wear.

FEATURES AND BENEFITS

- Five-rib Tread Design for improved handling and excellent wet traction.
- Combination Construction of polyester casing and steel belts provide outstanding durability.
- Load Range E Load Capacity for heavy duty applications

OE FITMENT ON:

- Isuzu NPR '05
- Mitsubishi Fuso FE-HD '04 - '10
- Chevrolet W4 '06
- GMC W4 (E) '04 - '06
- Isuzu NPR (E) '09 - '10



TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE			
				MEAS. (INCH)	ALT. (INCH)	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL
LT215/85R16	21301	10E	40	6.0	5.5 - 7.0	8.5	30.5	15	9.0	14.2	686	2680@80	2470@80	1215@550	1120@550

RY103/RY103A

LIGHT TRUCK COMMERCIAL

APPLICATION

Highway All Steel/Steel Belted Radial Rib

Low-profile, all-position radial for on-highway and in-city haul operations. It is also manufactured in a number of sizes for special applications and is recommended for light-duty vans and pickups.

The versatile, reliable RY103/RY103A incorporates low-profile engineering with proven quality construction for more miles-per-gallon, greater tire mileage, more payload potential, improved handling and better stability in steer, drive, trailer and dolly applications.

FEATURES AND BENEFITS

- Straight Five-rib Tread Design with four grooves inhibits stone retention, promotes even wear and provides a smooth ride, improved handling and superior wet traction.
- Wide Shoulder Ribs reduce shoulder step wear.
- Each size is manufactured with a specific tread depth to meet a greater range of applications.
- Excellent performance on all free-rolling positions.

OE FITMENT ON:

- Hino FB '04 - '05, FB (F) '04 - '05
- Mitsubishi Fuso FH (F) '04 - '10
- UD Trucks UD1800, UD2000 '04 - '09

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE			
				MEAS.	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL
185/70R15.5	10374	10E	30	5.25	6.00	7.3	25.7	12	7.6	12.0	807	2090@85	1980@85	950@600	900@600
205/60R17.5	10373	12F	33	6.00	5.25,6.75	8.1	27.2	12	8.2	12.7	763	2405@85	2270@85	1090@600	1030@600
215/75R17.5	10376*	12F	55	6.00	6.75	8.1	30.2	16	8.8	14.0	688	3530@100	3420@100	1600@690	1550@690
215/75R17.5	10308*	14G	56	6.00	6.75	8.1	30.2	16	8.9	14.0	694	3750@105	3530@105	1700@720	1600@720

* All Steel

RY215

LIGHT TRUCK COMMERCIAL

APPLICATION

Highway Steel Belted Radial Rib

The RY215 slices through standing water to provide outstanding wet-road performance. Designed for better handling, the RY215 is ideal for light and medium duty commercial applications.

FEATURES AND BENEFITS

- Tapered, Multi-kerf Shoulders prolong tread life and improve steering stability.
- Wide Grooves and Deep Kerfs disperse water more efficiently for wet-weather handling.
- High Turn-up Construction and Bead Filler reduce beadline cracking and improves responsiveness.
- Polyester Carcass with Steel Belts increases durability.

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE			
				MEAS.	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL
7.00R15	21501	8D	32	5.5	5.0 - 6.5	7.7	29.4	13	8.5	13.6	706	2040@65	1820@65	925@450	825@450
7.50R16	21505	12F	45	6.0	6.0 - 7.0	8.4	31.5	13	9.3	14.6	659	3175@95	3020@95	1440@650	1370@650

Y785R

LIGHT TRUCK COMMERCIAL

APPLICATION

Highway All Steel/Steel Belted Radial Rib

All-position radial for in-city haulers, such as package-delivery vehicles, oil-delivery vehicles, light-duty vans and pickups, etc. The Y785R has proven that it is an excellent tire in its class and that it delivers good fuel economy. Its straight, five-rib tread design promotes even treadwear and, together with the wide shoulder ribs, delivers a smooth ride, easy handling and improved shoulder step wear. It is manufactured in a number of specialty sizes for special applications including low platform, heavy load and on/off road.

FEATURES AND BENEFITS

- Straight Five-rib Tread Design with four wide grooves reduces stone retention and provides a smooth ride, improved handling and superior wet traction.
- Wide Shoulder Ribs reduce shoulder step wear.
- Extremely Fuel-efficient Compounds ensure ultimate fuel economy while providing excellent integrity and durability.

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE			
				MEAS.	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL
				(INCH)											
7.50R16	78546	14G	52	6.0	6.0	8.2	31.5	14	8.9	14.7	662	3330@100	3175@100	1510@690	1440@690
8R17.5	78547	10E	40	6.0	5.25 - 6.75	8.4	31.3	13	9.0	14.5	668	2790@80	2460@80	1270@550	1120@550

TY303

LIGHT TRUCK COMMERCIAL

APPLICATION

Highway All Steel Radial Traction

Drive-axle radial for on-highway operations for 2-axle tractors. Available in low-profile sizes.

Deep tread and advanced shoulder lug groove pattern promote flat, even treadwear throughout the long life of the tire. The special tread compound not only extends tire mileage, but also delivers increased fuel economy. The precise casing construction allows for excellent retreadability.

FEATURES AND BENEFITS

- Special Tread Compound generates fuel efficiency and long tread life.
- Advanced Arrangement of Shoulder Lug Grooves promote flat, even treadwear.
- Rib-block Tread Design combined with a deep tread depth provides low rolling resistance, outstanding traction on snow and muddy terrains and excellent durability.

OE FITMENT ON:

- Nissan Diesel UD1800 '95 - '06

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE			
				MEAS. (INCH)	ALT. (INCH)	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL
215/75R17.5	30309	14G	57	6.0	6.75	8.1	30.4	18	8.8	14.1	694	3750@105	3530@105	1700@720	1600@720
215/75R17.5	30365	12F	56	6.0	6.75	8.1	30.4	18	8.8	14.1	684	3530@100	3420@100	1600@690	1550@690
215/70R17.5	30302	14G	56	6.0	6.75	8.0	29.7	19		13.7	700	3415@110	3195@110	1150@760	1450@760

Y742S

LIGHT TRUCK COMMERCIAL

APPLICATION

Highway Steel Belted Radial All-Position

The rugged steel-belted construction conquers snow and mud in and out of the trenches. With its heavy duty, two ply steel belts, the Y742S delivers long mileage and handling stability.

FEATURES AND BENEFITS

- Aggressive Block Design for an iron grip in snow and mud.
- Buttressed Shoulder Block Design enhances traction.
- Open-channel, Self-cleaning Tread cuts through mud and snow.
- Long mileage and high traction engineered with a special tread compound.
- Polyester Body Plies increase driver's comfort on the road.

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE			
				MEAS. (INCH)	ALT. (INCH)	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL
7.00R15	74210	8D	37	5.5	5.0 - 6.5	7.8	29.8	18	8.6	13.8	697	2047@65	1820@65	925@450	825@450
LT235/85R16	74250	10E	49	6.5	6.0 - 7.0	9.3	31.9	18	10.1	14.8	650	3042@80	2778@80	1380@550	1260@550

Y735B

LIGHT TRUCK COMMERCIAL

APPLICATION

Highway Steel Belted Radial All-Position

The Y735B is designed to provide outstanding handling and traction for heavy-duty light truck applications. Original equipment on the Mitsubishi Fuso FG, the Y735B delivers traction and handling for on-highway applications.

FEATURES AND BENEFITS

- Outside Tread blocks provide extra traction on snow and mud covered roads.
- Center Tread Blocks are specially arranged to give improved stability and handling.
- Constant Contact Center Blocks reduce tread noise.
- Load Range E Construction provides extra load carrying capacity.

OE FITMENT ON:

- Mitsubishi Fuso FG '06

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE			
				MEAS. (INCH)	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL
7.50R16	73504	10E	42	6.0	5.5 - 7.0	8.5	32	18	9.4	14.8	656	2755@80	2470@80	1250@550	1120@550

TY025

LIGHT TRUCK COMMERCIAL

APPLICATION

Highway All Steel Radial All-Position

The TY025 is a sure-footed traction tire for the roughest highway conditions. Its wide shoulder ribs add miles and tread life. Handling and ride comfort are provided by its straight five-rib tread design.

FEATURES AND BENEFITS

- Computer-designed Uniform Profile maintains balanced dispersion of stress for easy rolling, longer life and enhanced fuel economy.
- Heavy-duty, Two-ply Steel Belts deliver long mileage and handling stability.
- All-steel Construction improves original tread durability and guards against punctures.
- Sturdy 14-ply Construction carries the load up to 3330 lbs. single and 3175 lbs. dual-tire.

TIRE SIZE	PART NUMBER	PLY RATING (L.R.)	TIRE WEIGHT (LBS)	RIM SIZE (INCH)		INFLATED DIMENSIONS		TREAD DEPTH (1/32")	LOADED DIMENSIONS			MAX LOAD CAPACITY AT COLD INFLATION PRESSURE			
				MEAS.	ALT.	OVERALL WIDTH (INCH)	OVERALL DIAMETER (INCH)		SECTION WIDTH (INCH)	STATIC RADIUS (INCH)	RPM	LB/PSI SINGLE	LB/PSI DUAL	KG/KPA SINGLE	KG/KPA DUAL
7.50R16	02501	14G	58	6.0	6.0	8.2	32	19	9.0	15.0	650	3330@100	3175@100	1510@690	1440@690